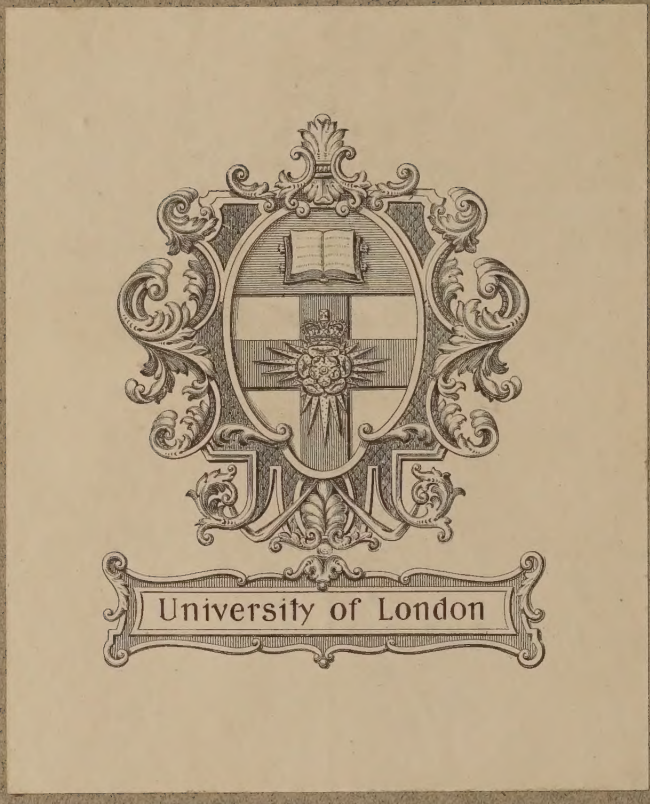

University of London

605343

REPORTS

FROM

COMMITTEES:

ELEVEN VOLUMES.

—(10.)—

HARBOURS OF REFUGE;
HOP DUTIES.

Session

30 *April*——28 *August* 1857.

VOL. XIV.

1857—Sess. 2.

REPORTS FROM COMMITTEES:

1857—Sess. 2.

ELEVEN VOLUMES:—CONTENTS OF THE

TENTH VOLUME.

N.B.—*THE* Figures *at the* beginning of the line, *correspond with the* N° *at the foot of each* Paper; *and the* Figures *at the* end of the line, *refer to the* MS. Paging *of the Volumes arranged for The House of Commons.*

HARBOURS OF REFUGE:

262. REPORT from the Select Committee appointed to inquire into the Policy of making further GRANTS of PUBLIC MONEY for the Improvement and Extension of HARBOURS of REFUGE; together with the PROCEEDINGS of the COMMITTEE, MINUTES of EVIDENCE, APPENDIX, and INDEX - - - - - - - - - - p. 1

HOP DUTIES:

252. REPORT from the Select Committee appointed to inquire into the Operation of the EXCISE and CUSTOMS DUTIES upon HOPS; together with the PROCEEDINGS of the COMMITTEE, MINUTES of EVIDENCE, and APPENDIX - - - - - - - - - - 347

252–I. INDEX to REPORT on HOP DUTIES - - - - 779

HARBOURS OF REFUGE:

REPORT - - - - - - - - - - - p. 3
PROCEEDINGS - - - - - - - - - - 4
MINUTES OF EVIDENCE - - - - - - - - 9
APPENDIX - - - - - - - - - - - 251
INDEX - - - - - - - - - - - - 303

HOP DUTIES:

REPORT - - - - - - - - - - - 349
PROCEEDINGS - - - - - - - - - - 350
MINUTES OF EVIDENCE - - - - - - - - 367
APPENDIX - - - - - - - - - - - 771
INDEX - - - - - - - - - - - - 781

REPORT

FROM THE

SELECT COMMITTEE

ON

HARBOURS OF REFUGE;

TOGETHER WITH THE

PROCEEDINGS OF THE COMMITTEE,

MINUTES OF EVIDENCE,

APPENDIX, AND INDEX.

Ordered, by The House of Commons, *to be Printed,*
11 *August* 1857.

262—Sess. 2.

Jovis, 18° *die Junii*, 1857.

Ordered, That a Select Committee be appointed to Inquire into the Policy of making further Grants of Public Money for the Improvement and Extension of Harbours of Refuge.

Jovis, 25° *die Junii*, 1857.

Committee nominated of—

Mr. Wilson.	Mr. Philips.
Mr. Lowe.	Mr. Hassard.
Mr. Baring.	Mr. Augustus Smith.
Lord Naas.	Sir Robert Ferguson.
Lord Adolphus Vane Tempest.	Mr. John Henry Gurney.
Mr. Kendall.	Mr. Traill.
Mr. Liddell.	Lord John Hay.
Sir Frederick Smith.	

Ordered, That the Committee have power to send for Persons, Papers, and Records.

Ordered, That Five be the Quorum of the Committee.

Veneris, 26° *die Junii*, 1857.

Ordered, That the Select Committee do consist of 16 Members, and that Mr. Fergus be added to the Committee.

Mercurii, 1° *die Julii*, 1857.

Ordered, That Mr. Dodson, Mr. Clay, Mr. Joseph Ewart, and Mr. Macartney be added to the Committee.

Lunæ, 20° *die Julii*, 1857.

Ordered, That the Copy of the Report by the Inspector under the Act 14 & 15 Vict. c. 49, to the Lords Commissioners of the Admiralty, in the case of the Aldborough Harbour of Refuge and Improvement Bill, be referred to the Select Committee on Harbours of Refuge.

REPORT - - - - - - - - - - - - - p. iii

PROCEEDINGS OF THE COMMITTEE - - - - - p. iv

MINUTES OF EVIDENCE - - - - - - - - p. 1

APPENDIX - - - - - - - - - - - - p. 243

INDEX - - - - - - - - - - - - - p. 281

REPORT.

THE SELECT COMMITTEE appointed to Inquire into the Policy of making further Grants of Public Money for the Improvement and Extension of HARBOURS of REFUGE, and who were empowered to Report the MINUTES of EVIDENCE taken before them to The House;

HAVE considered the Matters to them referred, and have agreed to Report the MINUTES of EVIDENCE taken before them to The House.

11 *August* 1857.

PROCEEDINGS OF THE COMMITTEE.

Lunæ, 6° *die Julii*, 1857.

MEMBERS PRESENT:

Mr. Wilson.	Mr. Baring.
Mr. Kendall.	Mr. Hassard.
Sir R. Fergu on.	Mr. Gurney.
Mr. Liddell.	Mr. Ewart.
Mr. Clay.	Lord John Hay.
Sir T. Smith.	Mr. Fergus.
Mr. Macartney.	Mr. Dodson.
Lord Naas.	

Mr. WILSON was called to the Chair.

The Committee deliberated.

Petition of Officers and Seamen sailing from out the rivers Wear and Tyne—referred on the 22d day of June—read.

[Adjourned till Monday, at Twelve o'clock.

Lunæ, 13° *die Julii*, 1857.

MEMBERS PRESENT:

Mr. WILSON, in the Chair.

Mr. Baring.	Mr. A. Smith.
Sir F. Smith.	Mr. Fergus.
Mr. Kendall.	Lord John Hay.
Mr. Traill.	Mr. Hassard.
Mr. Liddell.	Mr. Philips.
Mr. J. Clay.	Lord Naas.
Mr. Lowe.	Lord Adolphus Vane Tempest.
Mr. Macartney.	Mr. Gurney.

Captain *John Washington*, examined.

[Adjourned to Wednesday, at Twelve o'clock.

Mercurii, 15° *die Julii*, 1857.

MEMBERS PRESENT:

Mr. WILSON, in the Chair.

Sir F. Smith.	Mr. Fergus.
Mr. Baring.	Lord John Hay.
Mr. Kendall.	Mr. Hassard.
Mr. Traill.	Lord Naas.
Mr. Liddell.	Lord Adolphus V. Tempest.
Mr. J. Clay.	Mr. Philips.
Mr. Dodson.	Mr. Lowe.
Mr. Macartney.	Mr. Gurney.
Mr. A. Smith.	Mr. Ewart.

Captain *James Vetch*, examined.

[Adjourned to Monday, at Twelve o'clock

Lunæ, 20° *die Julii*, 1857.

MEMBERS PRESENT:

Mr. WILSON, in the Chair.

Sir R. Ferguson.	Lord Naas.
Sir T. Smith.	Lord Adolphus V. Tempest.
Mr. Liddell.	Mr. Ewart.
Mr. Kendall.	Mr. Gurney.
Mr. Baring.	Mr. Lowe.
Mr. Macartney.	Mr. A. Smith.
Lord John Hay.	Mr. Clay.
Mr. Hassard.	

Captain *Sulivan*, R.N., examined.

[Adjourned to Wednesday, at Twelve o'clock.

Mercurii, 22° *die Julii*, 1857.

MEMBERS PRESENT:

Mr. WILSON, in the Chair.

Sir F. Smith.	Mr. Gurney.
Mr. Clay.	Lord Naas.
Mr. Kendall.	Lord John Hay.
Mr. Liddell.	Lord A. V. Tempest.
Mr. Macartney.	Mr. Hume.
Mr. Dodson.	Mr. Ewart.
Sir R. Ferguson.	Mr. A. Smith.
Mr. Hassard.	

Report of Inspector, under the Act 14 & 15 Vict. c. 49, in the case of the Alborough, Harbour of Refuge, and referred on the 20th day of July, laid on the Table.

Mr. *John Coode*, examined.

[Adjourned to Monday, at Twelve o'clock.

Lunæ, 27 *die Julii*, 1857.

MEMBERS PRESENT:

Mr. WILSON in the Chair.

Sir F. Smith.	Lord J. Hay.
Mr. A. Smith.	Mr. Hassard.
Mr. Kendall.	Lord A. V. Tempest.
Mr. Baring.	Mr. Ewart.
Mr. Dodson.	Sir R. Ferguson.
Mr. Macartney.	Mr. J. H. Gurney.

Mr. *Edward K. Calver*, R. N., and Captain *George A. Fraser*, R. N., examined.

[Adjourned to Wednesday, at Twelve o'clock.

Mercurii, 29° *die Julii*, 1857.

MEMBERS PRESENT:

Mr. Lowe, in the Chair.

Mr. Hassard.	Mr. Dodson.
Sir F. Smith.	Lord John Hay.
Sir R. Ferguson.	Mr. Ewart.
Mr. Gurney.	Mr. Baring.
Mr. Kendall.	Mr. Gurney.
Mr. Macartney.	Mr. Philips.
Mr. Clay.	Mr. A. Smith.

Mr. *Ralph W. Jackson*, Captain *James Hosken*, Mr. *John Ramsay*, civil engineer, and Mr. *Richard Hoskyn*, examined.

[Adjourned to Monday, at Twelve o'clock.

Lunæ, 3° *die Augusti*, 1857.

MEMBERS PRESENT:

Mr. Wilson, in the Chair.

Sir F. Smith.	Mr. Baring.
Lord John Hay.	Mr. A. Smith.
Mr. Kendall.	Lord Naas.
Mr. Macartney.	Mr. Gurney.
Lord A. V. Tempest.	Mr. Dodson.
Mr. Liddell.	Mr. Philips.
Sir R. Ferguson.	

Petitions to be heard before the Select Committee, with reference to the requirements of the North-East coast, from members of the Seamen's Association, and Mayor, Aldermen, and Burgesses of South Shields, and referred to the Select Committee, 31st day of July, read.

Mr. *Joseph Cowen* and Mr. *John Robinson*, examined.

[Adjourned to Wednesday, at Twelve o'clock.

Mercurii, 5° *die Augusti*, 1857.

MEMBERS PRESENT:

Mr. Wilson, in the Chair.

Mr. Kendall.	Lord John Hay.
Sir F. Smith.	Mr. Liddell.
Mr. Macartney.	Mr. Clay.
Lord A. V. Tempest.	Mr. Philips.

Mr. Liddell was called to the Chair, in the absence of Mr. Wilson.

Petition of the Wexford Chamber of Commerce for the adoption of measures for the construction of a Harbour of Refuge on the coast of Wexford, and referred to the Select Committee on the 4th day of August, read.

Mr. *Thomas Simey*, Mr. *Charles Alcock*, Mr. *John Robinson*, Mr. *Frederick Wherland*, Captain *William Bourne*, and Captain *Thomas Heard*, examined.

[Adjourned to Friday, at Twelve o'clock.

Veneris, 7° die Augusti, 1857.

MEMBERS PRESENT:

Mr. Lowe.	Lord John Hay.
Mr. Smith.	Mr. J. Ewart.
Sir F. Smith.	Mr. Clay.
Mr. Kendall.	

Mr. Lowe was called to the Chair.

Petition of Commissioners of the Haven of Great Yarmouth, for the adoption of measures for making Yarmouth Harbour and Roadstead a Harbour of Refuge, and referred to the Select Committee on the 5th day of August, read.

Mr. *John Dunning*, Mr. *John Fowler*, and Mr. *Charles Alcock*, examined.

Resolved, That the Chairman do move for power to report the Minutes of Evidence.

Ordered, To report the Minutes of Evidence, with Appendix, to the House.

Ordered, To Report.

EXPENSES OF WITNESSES.

NAME of WITNESS.	PROFESSION or CONDITION.	From whence Summoned.	Number of Days Absent from Home, under Orders of Committee.	Expenses of Journey to London and back.	Allowance during Absence from Home.	TOTAL Expenses Allowed to Witness.
				£. s. d.	£. s. d.	£. s. d.
Mr. John Coode	Engineer	Portland	3	3 17 –	3 3 –	7 – –
Mr. E. K. Calver	Royal Navy	Holyhead	3	5 17 –	3 3 –	9 – –
Captain G. A. Fraser	Royal Navy	Kingstown	5	6 5 –	5 5 –	11 10 –
Captain J. Hosken	Royal Navy	Stroud	2	2 10 –	2 2 –	4 12 –
Mr. John Ramsay	Civil Engineer	Newry	7	8 – –	22 1 –	30 1 –
Mr. J. Cowen	–	Newcastle	2	7 10 –	2 2 –	9 12 –
Mr. J. Robinson	–	–	2	7 10 –	2 2 –	9 12 –
Mr. T. B. Simey	–	Sunderland	2	7 10 –	2 2 –	9 12 –
Mr. F. Wherland	–	Liverpool	2	4 10 –	2 2 –	6 12 –
Captain W. Bourne	–	Liverpool	2	4 10 –	2 2 –	6 12 –
Captain T. Heard	–	Sunderland	3	5 – –	3 3 –	8 3 –
Captain J. G. Bickford	Inspecting Commissioner.	Whitby	3	5 2 –	3 3 –	8 5 –
Mr. C. Alcock	–	Chingford	3	– 7 –	3 3 –	3 10 –
				TOTAL £		124 1 –

LIST OF WITNESSES.

Lunæ, 13° *die Julii*, 1857.

Capt. John Washington, R.N., F.R.S. p. 1

Mercurii, 15° *die Julii*, 1857.

Capt. James Vetch, R.E., F.R.S. - p. 26

Lunæ, 20° *die Julii*, 1857.

Capt. Bartholomew James Sulivan, R.N., C.B. - - - - - p. 54

Mercurii, 22° *die Julii*, 1857.

John Coode, Esq., C.E. - - - p. 89

Lunæ, 27° *die Julii*, 1857.

Mr. Edward Killwick Calver, R.N. p. 114

Capt. George Alexander Fraser, R.N. p. 139

Mercurii, 29° *die Julii*, 1857.

Mr. Ralph Ward Jackson - - p. 147

Captain James Hosken, R.N. - - p. 163

Mr. Richard Hoskyn - - - p. 166

Mr. John Ramsay - - - p. 172

Lunæ, 3° *die Augusti*, 1857.

Joseph Cowen, Esq. - - - p. 177

Mr. John Robinson - - - p. 193

Mercurii, 5° *die Augusti*, 1857.

Mr. Thomas Boyes Simey - - p. 203

Mr. Charles Alcock - - - p. 208

Mr. John Robinson - - - p. 213

Mr. Frederick Wherland - - p. 218

Mr. William Bourne - - - p. 224

Commander Thomas Heard, R.N. - p. 227

Veneris, 7° *die Augusti*, 1857.

Mr. John Dunning - - p. 231. 241

Mr. John Fowler - - - - p. 237

Mr. Charles Alcock - - - p. 240

MINUTES OF EVIDENCE.

Lunæ, 13° *die Julii*, 1857.

MEMBERS PRESENT.

Mr. Wilson.	Mr. Hassard.
Mr. Lowe.	Mr. Augustus Smith.
Mr. Baring.	Mr. John Henry Gurney.
Lord Naas.	Mr. Traill.
Lord Adolphus Vane Tempest.	Lord John Hay.
Mr. Kendall.	Mr. Macartney.
Mr. Liddell.	Mr. Clay.
Sir Frederick Smith.	Mr. Fergus.
Mr. Philipps.	

JAMES WILSON, Esq. IN THE CHAIR.

Captain *John Washington*, R.N., F.R.S., called in; and Examined.

Capt. *J. Washington*, R. N., F. R. S.

13 July 1857.

1. *Chairman.*] WHAT situation do you hold?—Hydrographer of the Navy.

2. For how many years have you held that situation?—I succeeded Rear-Admiral Sir Francis Beaufort, in January 1855.

3. Were you connected with the North Sea and East Coast Survey?—Yes; I was given the command of the North Sea and East Coast Survey in the year 1841, and retained it till 1846.

4. Were you connected with the Harbours of Refuge Commission in 1845?—Yes; I was a member of that commission.

5. And were you connected with the Tidal Harbours Commission of 1846 and 1847?—Yes; I was a member of that commission also.

6. Is it your peculiar duty to attend at the Admiralty to the questions of the harbour department?—I was for three years in the harbour department of the Admiralty, afterwards inspector of harbours for about three years, and from that I became hydrographer.

7. Under all these circumstances, I suppose you are familiar with the whole of the coast of the United Kingdom?—I am; I have visited and personally inspected almost every harbour in the United Kingdom.

8. Are you enabled to lay before the Committee any information with regard to the extent of the annual losses either by shipwreck or by damage done to ships at sea, year by year?—Yes; with a view to make that subject as clear as possible, I have had prepared a wreck-chart of the British Isles, showing the whole of the wrecks that have occurred for the last five years.

9. The aggregate?—Yes.

10. The published paper only refers to those within each year; is that so?—The published wreck-chart only refers to the wrecks for each year; it is better it should be so, otherwise it would cause confusion; but the last return by the Board of Trade gives also a tabular statement of the wrecks for five years.

11. Can you state to the Committee the number of ships that have been actually lost in those five years; have you got the number?—Do you mean totally lost by wrecks and collisions?

12. Total losses?—The whole number of casualties in five years is 5,128; but

Capt. *J. Washington*, R. N., F. R. S.

13 July 1857.

that does not imply total loss; the number totally lost by collision is 244; by stranding 1,940.

13. That is the number of vessels that have been totally wrecked?—Totally wrecked.

14. Did that include the numbers lost by collision?—No, they are separate; 244 in number.

15. It includes only those that have been lost from stress of weather?—From stress of weather and casualties connected with the coast; running on sands and on the shore, and accidents of that kind.

16. Have you any computation of the number that have been injured without total loss?—Yes; they are separated; it will be the difference between the two; it will be 2,401.

17. Those numbers you will correct, if you are able to do so?—Yes; it is, correctly, 2,401 in the five years.

18. Would those two numbers include the whole of the casualities on our coast during that period?—With the exception of collisions, which, for the five years, have been 787 in addition.

19. In how many cases has total wreck ensued from collision of that number? —Two hundred and forty-four totally lost by collision.

20. That number 787 includes casualties of all kinds, whether total wreck or partial damage by collision?—That is, such damage as requires to discharge cargo, otherwise a vessel is not inserted in the list of wrecks at all.

21. It includes all such damage as involves a discharge of cargo?—They are considered such casualties as to be included in the wreck list.

22. Have you any means of computing the loss of property in the ships that were actually wrecked?—I think a tolerable approximation can be made to it; I observe, in the Report of the Shipwreck Committee of 1836, it is estimated at 5,000 *l.* a vessel; I think that is an over-estimate; I think, probably, 2,000 *l.* would be a nearer amount; 2,000 *l.* each total wreck, and perhaps one fourth of that for each vessel that had only to discharge cargo.

23. Do you speak now of the vessels only?—Vessels and cargo; in the case of a total wreck the cargo is generally lost also; it may be under that amount; it is a very difficult thing to arrive at the truth of that, but 5,000 *l.* strikes me as much over the mark; I have no doubt some witnesses will attend who will be able to inform the Committee on that part of the subject.

24. Have you any specific data on which that calculation is made?—No further than inquiring from different harbour masters, and other persons, what their opinion is; I observe that, in the Return of Wrecks published by the Board of Trade, there is no approximate value given to the ships lost. At the Admiralty we did that for 1852, 3 and 4, if I remember rightly; but I do not happen to have the return before me.

25. How many vessels did you say had been totally wrecked?—I think about 2,300.

26. That would be, taking 2,300 vessels at 2,000 *l.* a piece, it would amount to nearly five millions sterling, would it not?—Five millions in the five years; a million a year is about what I consider it; I think that is an under-estimate.

27. And the remainder of the vessels at about a fourth of that?—About a fourth of that, a million and a quarter a year.

28. Then the result is, that you would compute the loss by shipwreck, on that data, at about a million and a quarter a year?—Yes; I find on my notes that I had considered it a million and a half, that is, a million and a quarter for the wrecks, and a quarter of a million for the other casualties.

29. As far as you can estimate, from a million and a quarter to a million and a half may be computed as the loss from shipwreck annually?—I think so, certainly; it is rather more than less.

30. Have you any computation of the number of lives that have been lost within that period?—Yes; I am sorry to say that the average number of lives lost for the last five years has been 830.

31. Included in the casualties to which you have now referred?—Yes.

32. You say the average has been 830?—Yes, for the last five years. In the year 1852 there were 920; in the year 1853 there were 689; in the year 1854, 1,549 were lost; that is the blackest year we have had on record for a long time; in

Capt. *J. Washington*, R. N., F. R. S.

13 July 1857.

in 1855, 469 were lost; in 1856, 521 were lost; I am happy to see that they are apparently gradually diminishing.

33. Is there any reason that you can assign for the gradual diminution?—I attribute it in some measure to the excellent working of the Mercantile Marine Act, which I think has been one of the greatest boons ever conferred on the public of this country; and I think in a few years it is quite possible to reduce that number to half, partly by the working of the Mercantile Marine Act, partly by a more numerous and better class of life-boats, and partly by what I trust will be the result of this Committee; so that, with harbours of refuge and the operation of that Act, the number of lives will be one-half saved; that is my serious belief; I think many of the losses are quite within preventible causes.

34. Since the Mercantile Marine Act came into operation, have you the means of judging of the improved quality of the masters of vessels?—Yes, wherever I have met with them I have found a visible improvement; I find an improvement in the seaworthiness of the vessels, in their equipments; their sails, their ropes and their anchors are in better order in every respect, and in the character and comportment of the masters and the men. I believe that Act will do more in a few years to raise the status of the mercantile service than anything that has been done during the last century; and I trust that the Board of Trade will turn a deaf ear to the clamour of some who wish to be freed from its wholesome restraint, and that, instead of relaxing, it will make its inquiries into the loss of vessels still more stringent.

35. Was it the case that, before that Act came into operation, very inefficient captains were put on board many coasting vessels which was the cause of their loss?—Very inefficient, indeed; it is almost within my own knowledge that a man who had gone out as cook of a vessel on one voyage went out in her as master on the next; and one or two such cases are distinctly reported by the Select Committee on Shipwrecks of 1836.

36. On what part of the coast of Scotland do the greatest number of casualties occur?—The whole way, from the Firth of Forth to the Orkneys; the whole length has wrecks marked on it, as you will see by the chart before you. If I may remark, the Wreck-chart in some respects, good as it is, does not go to the real extent of the evil; all very small vessels, all fishing-boats are entirely omitted; thus a gale of wind may sweep a hundred fishing-boats off, and 500 men, and there would be no record of it on this chart; therefore it does not guide us in a manner that would be desirable.

37. Then the casualties, as they affect life or property, do not include the casualties to fishing-boats?—No.

38. What limit has it; does it take in decked vessels only?—Decked vessels only; vessels, probably, of 15 or 20 tons.

39. At present there is no harbour of refuge from the Forth to the Pentland Firth?—None, except Cromarty Firth, which lies so deeply in the bay that it is a place which few vessels think of running for.

40. Looking at the most northerly part of Scotland, how are the islands, the Orkneys and Shetland, off for harbours of refuge?—Both Shetland and Orkneys have so many natural harbours, that although many wrecks do occur there (in one year 35 occurred on the Orkneys alone), still they have so many natural harbours that if they are properly buoyed, and beaconed, and lighted, they do not want any further assistance; the case is different as you approach the Pentland Firth.

41. What are the harbours on the north coast?—In the Pentland Firth, which is the most frequented, Thurso Bay, and Scrabster form a very passable harbour of refuge, in some winds; from that to the westward there is nothing till you come to Loch Eribol.

42. What is the distance of that?—It is 75 miles.

43. The west coast of Scotland is well furnished with natural harbours?—Yes.

44. The north-east coast is very much exposed?—It is extremely exposed, and a coast very much frequented, as every vessel that passes through the Pentland Firth must pass it; they call there for a pilot, and round the extreme north-east point of Caithness.

45. Which is the first place that is marked out by nature as the most convenient for a harbour of refuge there?—The only bay in that part, for a long extent of coast, of the least consequence, is Wick Bay.

 46. There

Capt. *J. Washington*, R. N., F. R. S.

13 July 1857.

46. There is already a harbour there?—There is a harbour for fishing-boats, which is dry, or nearly so, at low water, at Pulteney Town Harbour, but it is not available as a refuge harbour; on the contrary, it was in running for that very harbour that the great damage occurred in August 1848. At the time of the herring fishery, there will be fully 1,700 boats fishing off the coast of Caithness; 1,000 of them alone will go from Wick; if a gale springs up, which is common in the North Sea without warning, all those boats must run for shelter somewhere; if by chance it is towards high-water they may get into some port, but they will be crowded and get damaged in doing that; if it is low-water there is no alternative but to go on the beach and be wrecked. Such a thing did occur in August 1848, on which occasion 100 lives were lost in a single night from a gale springing up in that manner; the boats went to sea on a fine afternoon, and by six o'clock in the morning 100 lives were lost, leaving 47 widows and 161 children totally unprovided for: a calamity without precedent in the annals of the British fisheries.

47. The present harbour of Wick furnishes no sufficient security in a case of that kind?—Not the least, and I do not know any spot in which that sort of refuge is more required, or where it would be more valuable.

48. Are you aware of the proposal that has been made in the present Session of Parliament to enlarge that harbour?—Yes, I am; I have a plan which shows the proposal.

49. In your opinion, if that were carried out, would it be effective for the purpose of affording shelter in the cases you have alluded to?—It would afford better shelter than at present exists, but as far as a general harbour of refuge is concerned it would be unavailable.

50. It would afford shelter to the fishing boats; would it afford shelter for large vessels if they were in those seas?—Not to run for in a gale of wind; the greatest depth at the entrance is only 15 feet at low water.

51. The whole benefit of that improvement would be to furnish better accommodation to the fishing boats belonging to the port of Wick?—Just so.

52. So far as that is concerned, it would be sufficient for that purpose?—It might be.

53. So far as the local wants of Wick are concerned, you think that the proposed alteration would accomplish all that is required?—Possibly; I think it would.

54. But so far as a general harbour of refuge is required for mercantile vessels passing through those seas, and men-of-war, it would be perfectly inefficient?—Quite inefficient.

55. In considering the proposal which has been made with regard to Wick Harbour, have the Admiralty considered any other plan that they think would answer both the local purposes and the public purposes?—Yes; the Admiralty have had before them several reports on a more extended harbour, a sketch of which is drawn, marked by red lines, on this present plan; and the Admiralty, in their Report on the present proposal for Pulteney Town Harbour, recommend a more extended harbour.

Vide Plan at the end.

56. Could you put in a small sketch of that map, so that it can be added to your evidence?—Yes.

57. Showing the plan proposed by the Bill passed this year, and the alternative plan proposed by the Admiralty?—Yes.

58. What is the computed cost of the harbour as proposed by the Wick Harbour Commissioners?—I think it is 35,000 *l.* or 40,000 *l.* as proposed by them, the small harbour.

59. Is it not 44,500 *l.*?—Yes.

60. Have you any computation of what the larger harbour would cost?—I think I have. It was reported on by Captain Vetch, R. E., who recommended two breakwaters, one from the north shore of the bay, and the other from the south shore, sheltering an area of 60 acres, having a depth of 12 feet and upwards, and 42 acres, with a depth of 18 feet and upwards at the time of low water spring tides; the total cost estimated by Mr. John Coode, C. E., Engineer-in-chief of Portland Breakwater, at 175,000 *l.*; the period required for completion, seven years.

61. Would that larger plan which you have just referred to afford, in your opinion, all the convenience which the small plan does for local purposes in addition to the convenience for the more general purposes?—I think it is probable they would require more quay room to land their fish as the fishery would

would increase, they would require more trifling conveniences of that sort, a pier probably run out to low-water, for the purpose of landing their fish, small vessels discharging cargo, and steamers landing and embarking passengers.

62. So far as the security of the boats is concerned, you think that the larger plan would answer all the purposes?—Yes; it would not only secure their boats, but every vessel that trades there, and every vessel of war that might be stationed on that coast; it would give great facility in supplying them with coal, and would be the means of saving great numbers of lives, there cannot be a doubt about it.

63. If the smaller plan were adopted, would it be secured against a very strong south-east wind?—According to the present proposal, I think it is considered doubtful by the engineers whether it would be sufficiently sheltered.

64. Is there not an opinion that the sea would be so strong sometimes that it would wash over the small pier intended to be made?—Yes; it does so already on the eastern pier of the outer harbour; so much so, that no boat can lie there in a heavy gale; and it is much to be feared that the same thing may arise from the more extended local harbour proposed.

65. If that more extended harbour were made, which is proposed by the Bill of this year, the boats lying inside would be exposed to some danger?—Yes.

66. Would that danger be entirely averted by the larger plan?—I think so, entirely.

67. Would there not still be considerable danger in the harbour by the smaller plan from a strong north easterly wind coming round the point of land?—Yes, there would.

68. And would not the harbour, according to that plan, be very much more likely to silt up by the current coming round that point?—It is very possible that the silt brought down by the river might go into that harbour.

69. The larger plan which is proposed provides for a pier from the south and from the north?—Yes, it does.

70. Leaving a large opening in the centre?—Yes.

71. In that case the harbour would be protected by the north pier from the north-east winds, and by the south pier from the south-east gales?—Just so; and the present proposal under the local Bill would give no shelter at all to all the harbours and piers and jetties on the north side of the Bay.

72. The whole of those harbours and piers would be as much exposed in a strong south-east gale coming round the point as they are now?—They would be quite as much exposed to the gale, and might receive greater damage from a larger body of water being thrown against them.

73. Even for the local purposes that smaller plan would be very insufficient?—I think it would not be sufficient.

74. Is there any question at all as to the Bay of Wick being the best place on that coast for a harbour of refuge?—There cannot be a question about it; there is no other spot on which it could be made.

75. Would the casualties, which have been considerable in that immediate neighbourhood, be averted by the harbour there?—The casualties to fishing-boats have been very heavy indeed, and they would be entirely averted.

76. To trading vessels?—To trading vessels also; although it does not appear by the chart before me that there have been more than ten wrecks there during the last five years.

77. But the trading vessels, the vessels which are lost at some distance from that particular spot, might probably have been saved if they had had a harbour to run for?—Undoubtedly; the knowledge of a harbour of refuge being within reach is of the greatest value to the master of a vessel at sea in a gale.

78. The value of a harbour of refuge must not be computed by the losses in the immediate vicinity, but within the whole range of sea in which vessels could avail themselves of it in the event of a storm?—Exactly so, by the whole of the district which would benefit by it, which would be a very large district, including the whole of the traffic passing to and from the Pentland Firth.

79. In a strong south-easterly gale on the east coast of Scotland, a harbour at Wick might be available to those vessels overtaken by storm?—Completely so.

80. So that the importance of a harbour of refuge at Wick must have reference to the losses on the whole of the east coast of Scotland northward of the Firth of Forth?—North of Peterhead.

 81. What

Capt. *J. Washington*, R. N., F. R. S.

13 July 1857.

81. What range of coast would the Wick Harbour suffice to cover?—I round numbers about 100 miles of coast.

82. And therefore it may be considered to be applicable to all the losses that have taken place within that range of 100 miles?—In a very great measure.

83. Now, coming southward, what is the next point you consider now exposed to special danger?—A good many wrecks occur along the east coast of Scotland, but hardly sufficient, I think, to warrant a large harbour of refuge at any particular spot.

84. A great number of those wrecks along the east coast of Scotland would be averted by the fact of the existence of a good harbour at Wick, would it not?—All north of Peterhead; I may say that a harbour has been proposed at Peterhead by Mr. David Stevenson, C. E., having an area of six acres, with a depth of 12 feet and upwards at low water at spring tides, at an estimate of 228,000 *l.*, but that sum includes finished masonry piers.

85. The coast of Peterhead is very much exposed?—It is very much exposed, but it is a great turning point; everything bound to the Moray Firth passes close to Peterhead. There is a very large whale fishery from Peterhead.

86. There is no natural bay or harbour that would facilitate the making of a harbour of refuge?—In some measure the south bay would, but not on a sufficiently large scale to accomplish what is necessary.

87. It would be necessary to have a deep sea harbour altogether?—Yes; but then the estimate to make it of any size would be very much increased; that estimate would not make a deep sea harbour of any consequence.

88. What next point of the coast does it appear to you desirable to have any special requirement for additional security?—On the coast of Scotland.

89. Travelling southward?—At Elie, on the Firth of Forth, a harbour has been proposed, as also in Rome Bay, near Crail.

90. The Firth of Forth presents a good refuge in itself?—It does; and St. Margaret's Hope is a natural harbour of refuge; it is a long distance to run up; but still it is quite safe when reached.

91. The losses on that immediate coast are not very numerous?—The total wrecks are not numerous. There are a great many very small tidal harbours within the Firth of Forth, and the small vessels going into these do come to damage occasionally. There are apparently a great many casualties in the Firth of Forth, but not sufficient, in my opinion, to require a public harbour of refuge.

92. Is not the Firth of Forth itself a very safe place for vessels to run to?—Yes; it is a natural harbour of refuge. Only I was mentioning as I came up the coast the places at which harbours of refuge were proposed, and Elie is one.

93. Would not the harbour at Elie be more for local purposes than for general purposes?—Yes.

94. Would it not be more for the trade of the coast of Fife than for the general commerce of the country?—Yes; and it would be very useful for the fishing boats, of which there is a large number; a harbour is also proposed at Dunbar, entirely outside the present fishery harbour.

95. Are you aware that there is an arrangement made for enlarging that harbour?—I have understood so; and it would no doubt be money extremely well laid out, and a great benefit to the fishery.

96. That again is chiefly used, or almost exclusively used, for the local trade of the town of Dunbar, and the fishing towns in the immediate vicinity?—It is so.

97. The harbour of Dunbar is altogether distinguished from a harbour of refuge, being rather a trading harbour?—Entirely so; the present harbour is only a fishery harbour; it is no harbour of refuge; the harbour of refuge proposed is entirely outside that. It so happens that the rocks lend themselves particularly well to the construction of a harbour; and a harbour has been designed, nothing more.

98. Is that external from the trading harbour?—Quite external from the trading harbour.

99. In your opinion, would it be a wise thing to spend public money on a harbour of refuge in that place, when a vessel from the north or south could so easily run into the Firth of Forth?—I think I could not recommend the expenditure of public money for a harbour of refuge there.

100. Are all the requirements provided by the Firth of Forth?—Yes; and the Tay in a great measure is also at most times a harbour of refuge.

101. Then,

Capt. *J. Washington*, R. N., F. R. S.

13 July 1857.

101. Then, coming southward, what is the next point to which your attention has been called as being desirable for further security being given to shipping?—Coming south, it will be necessary to take into consideration the whole coast, from St. Abb's Head to Flamborough Head.

102. What is the distance between those two points, St. Abb's Head and Flamborough Head?—About 150 miles.

103. Is that part of the coast at present quite deficient of any harbour of refuge?—It is entirely deficient; there is no harbour in which a vessel can enter at low water.

104. Is there any harbour that has not a bar in that line of coast?—Not one.

105. Have they all dangerous bars to cross?—They are all bar harbours, every one of them, without exception.

106. Have you separately any computation of the number of the casualties on that part of the coast?—If the Committee will notice, I have had prepared, by Mr. Calver, R. N,, a chart of that coast (*exhibiting a Chart*), which, if it were placed against the wall, would show at a glance, much more than anything I could say; the black line on it marks the line of embayment on the coast.

107. From St. Abb's Head to Flamborough Head?—Yes; it shows that at that spot (*pointing to the Chart*) the bight of the bay would naturally be the focus of wrecks, and so it is; Tees Bay is the focus of wrecks on the east coast of England; and this bay includes Hartlepool, Stockton and Redcar.

108. Can you give the Committee a calculation of the number of casualties that have occurred between those two points?—I think I can; of the whole of the wrecks that occur on the coasts of the United Kingdom and within its seas, fully one-half occur on the east coast of England; one-half of this half, or a quarter of the whole, occur within the limits I have stated.

109. Between Flamborough Head and St. Abb's Head?—Yes.

110. Do the numbers you have given include Great Britain and Ireland?—Yes; the whole coast. I see that Table VI. of the Wreck Return, prepared by the Board of Trade, shows that, in the year 1855, 576 wrecks occurred on the east coast of Great Britain, and in the last year 506 wrecks occurred, or about one-half of the whole. The tables are not further subdivided; but I know from accounts which I have prepared, that, as I said, full one-half of that number occur between the Firth of Forth and the Humber.

111. Have you any doubt as to the best place for a harbour of refuge?—I have not the slightest doubt that Tees Bay is the proper place where it should be. Whether at Hartlepool, or Redcar, or on which side of the bay, perhaps would require a little more consideration; my present impression is, that Hartlepool would be the right place for it; Hartlepool affords great facilities, the site has been reported most favourably upon by the late eminent engineer, Mr. Rendel, whose loss we all deplore. At the instance of the Port and Pier Commissioners, he was ordered by the Admiralty to examine carefully into the subject, and he reported strongly in favour of a harbour by running out piers on the north and south side of the bay; his plan encloses an area of 470 acres, having a depth of 12 feet and upwards, and of 325 acres having a depth of 18 feet and upwards at low-water spring tides; his estimate for the total cost of that is 800,000 *l.*, and the period required for completion about six years.

112. Is there not already a good trading harbour at Hartlepool?—There are two; West Hartlepool has been a new and a wonderful creation. Within the last 30 years, Hartlepool, from being merely a fishing village, has risen up to be one of the first coal ports on the east coast of England.

113. And do you think that a harbour of refuge, such as Mr. Rendel proposed, would not in any way be injurious to the existing trading harbour?—No; on the contrary, I think it would be a great advantage to it, and one to which its trade partly entitles it.

114. Would a harbour situated at that particular point, in your opinion, serve all the purposes of that coast for vessels, either from the north or from the south?—It would serve all the purposes within a certain district. The worst wind that can blow on that coast is east and by north. Gales not uncommonly spring up at the south-east, and veer to north-east; vessels would be enabled at certain states of the wind, from the north and south, to fetch into Tees Bay.

 115. Then,

Capt. *J. Washington*, R. N., F. R. S.

13 July 1857.

115. Then, looking to all the neighbouring ports of Newcastle, Sunderland, and the other smaller ports in the neighbourhood, is it your opinion that a harbour of refuge in that particular spot would answer the purposes of all those ports, for vessels making for those ports?—With certain winds it would, and I am of opinion that it would be the means of saving more vessels from wreck than a harbour that could be placed in any other position on the east coast of England, or indeed on any part of the coast of Great Britain.

116. Then coming further south, is there any point of the coast which is at present very much exposed to danger?—No, I think not. At Flamborough Head, in Bridlington Bay, a great many wrecks occur; it is a calling-place for vessels in a northerly wind; I have known as many as 400 light colliers there. If a second harbour of refuge on the coast of England could be made, I should recommend one in Bridlington Bay, but not in preference to Tees Bay.

117. If there were vessels on that part of the coast with a strong northerly wind, they could run for the Humber?—Yes, but it is a long distance to run for; vessels do not like to run so far to leeward of their direct course.

118. With the Humber on the south, and a harbour of refuge at Tees Bay on the north, a great deal of the danger of the coast of which you are speaking would be averted?—It would. I am not pressing Bridlington Bay as a harbour of refuge.

119. It is in some respects a harbour of refuge now?—Yes; with a north-west wind it is very much resorted to by vessels; if the inner harbour of Bridlington could be improved, I think it would be a great advantage to the numerous vessels that are forced to take shelter in the bay, where 3,760 ships anchored last year.

120. The inner harbour is the trading harbour?—Yes.

121. Then further south?—The Humber offers an important natural harbour of refuge, particularly since the magnificent Grimsby Docks and Basin have been constructed; I have seen as many as 400 vessels lying in Grimsby Roads at one time, showing that it is very much used by vessels.

122. Then going further south?—Further south, Lynn Deeps offer also a natural harbour of refuge, but it is little used.

123. Do you think it answers all the purposes of that part of the coast, the immediate locality of that coast?—I think it does.

124. Then coming further south?—A great many wrecks occur on the Yarmouth Sands, still the sands form a breakwater, and Yarmouth Road is in a great measure a natural harbour of refuge, and although the wreck-chart appears black about that part, still there is no doubt that the exercise of a little more care and caution would enable vessels to get safely into Yarmouth Road.

125. Would it be difficult to form a harbour there?—Yes.

126. There is no natural bay?—No, only the outlying sands, and it would not be wise to build on them. Further south we come to the entrance of the Thames and the Downs, which in themselves are a natural harbour of refuge. The Goodwin Sands, which cause the loss of a great number of vessels, actually act as a breakwater, and afford shelter to Deal and the Downs. Then Ramsgate is a very useful harbour in addition, but it is a tidal harbour, and can only be considered a harbour of refuge for small vessels at tide time.

127. What part of the coast, getting down in that direction, is the next point which to your mind offers facility for increasing the security to merchant shipping?—I should mention about the entrance of the Thames; I omitted to speak of Harwich, which is also a natural harbour of refuge, very much benefited by the outlay of 120,000 *l.* of Government money, which has been expended upon it within the last 10 years; it has now a depth of 18 feet at low water, and 30 feet at high water spring tides.

128. Is there nothing that you would suggest to be done there?—Nothing more at present; it is now a very valuable harbour of refuge in case of need.

129. Passing over those places on which you have no recommendation to make, will you state the next point on the coast which you think it necessary to call the attention of the Committee to?—On the south coast of England, the most useful shelter would be to the westward of Beachy Head. I take it for granted the refuge harbour at Dover will go on until completed; I do not refer to it as it is in the course of construction, and will be a very valuable harbour when finished, and indeed already affords most useful shelter. Westward of Beachy

Beachy Head, Seaford and Newhaven afford a very eligible spot; yet I could hardly recommend a large amount of public money to be expended on a harbour of refuge there. An improvement of the natural small harbour of Newhaven would be a great benefit, indeed, at a very small cost.

130. There do not appear to be many casualties occurring on that part of the coast, according to the Wreck-chart?—No; vessels reaching that distance, when they are driven back again, run down Channel, and have to return; it is more a matter of loss of time than of danger.

131. There is not much loss of property or loss of life?—No.

132. Then coming to the westward?—To the westward, Portland is rapidly becoming a very valuable harbour of refuge indeed.

133. And that will supply all the wants of that part of the coast?—Yes. Plymouth is also a natural harbour of refuge.

134. And has it been very much improved by a breakwater?—Yes.

135. I suppose Plymouth is one of the most perfect harbours of refuge throughout the coast?—Yes; vessels of the largest dimensions may run for it at any time.

136. Therefore, with Plymouth and Portland, you think that the south coast of England is at the present time very well furnished with secure harbours of refuge?—Yes. As soon as you draw towards the Land's End, the Committee will observe the Wreck-chart is covered with black dots. Somewhere about the Land's End a better harbour is wanted. Falmouth is in some measure a natural harbour of refuge, but it might be improved very much; a small outlay there would be equivalent to a very much larger outlay elsewhere. Sooner or later, no doubt, some of our packets will move westward again, and the necessity for improvement there will be more evident.

137. The largest portion of shipping going out of the English Channel keep entirely clear of that part of the coast?—Yes, as far as they can, they do so; but many call at Falmouth for orders in returning home; it is in the coming home for which Falmouth is so valuable.

138. Is there any part of that coast which you consider offers advantages so great as Falmouth for the purposes of a harbour of refuge?—No, not on the south side, none so great as Falmouth.

139. When you spoke of the westerly part of Cornwall, do you mean that the dangers there might be averted by improving Falmouth?—Vessels knowing that they have a safe harbour to run for, would feel more confident, undoubtedly, and would make for it.

140. It is only in stress of weather that accidents occur much on that coast; vessels do not go near the coast, unless by stress of weather?—No, not outward-bound vessels; homeward-bound vessels very commonly call at Falmouth for orders. Immediately round the Land's End, St. Ives' Bay offers itself, and a large number of wrecks occur thereabouts.

141. St. Ives' Bay has been reported upon?—Yes, by Captain Vetch, R.E.

142. Have you his report here?—I have the outline of his report; he recommends a breakwater on the north and south sides, the area of which, I think, would be 80 acres, having 12 feet, and 56 acres, having a depth of 18 feet and upwards; his estimate of the total cost would be 174,400 *l.*; and he thinks it might be completed in seven years, at an outlay of about 25,000 *l.* a year.

143. Would it be of importance for vessels running up the Irish Channel in some states of the weather?—It would, and particularly vessels running into the Bristol Channel.

144. It is quite in their way?—Yes; they all pass it. If any harbour of refuge should be made for the Bristol Channel, where there is a great amount of traffic, St. Ives seems to be the spot.

145. Is there no part further up the coast that would be more suitable?—None; others have been recommended; New Quay, about 30 miles higher up. A report was made by the late Mr. Ball, civil engineer, in 1848; he recommended a large deep-water harbour, at a cost of about 700,000 *l.*

146. So far as your opinion is concerned, St. Ives' Bay, with the outlay you have mentioned, as recommended by Captain Vetch, would be a better place?—Yes, much better indeed, and a more useful harbour.

147. And you think that all the danger which at present attaches to shipping in the Bristol Channel might be provided for by improving and making a

Capt. *J. Washington*, R. N., F. R. S.

13 July 1857.

harbour at St. Ives?—It would be a great benefit to the shipping of the Bristol Channel and the entrance of the Irish Sea.

148. Proceeding further up the coast, what is the next point to which your attention has been drawn?—On the west coast of England there is the natural harbour of Milford Haven, a very valuable harbour; I do not think any other is required. Many wrecks do occur in Cardigan Bay, but, with the very large refuge harbour of Holyhead in the immediate vicinity, I could not recommend an outlay of public money there. I think that a little more care and attention to the set of the tides would save many of the wrecks that occur there.

149. You think there is no point between St. Ives' Bay and Holyhead where it is advisable to spend public money?—Not in making a large harbour of refuge. If it were a question as to improving the small harbours, I think a great deal might be done, but that is not at present the question.

150. By small harbours, you mean trading harbours?—Yes; I think, with the exception of a harbour of refuge in Tees Bay, a much greater benefit would be afforded by improving the small harbours than by any other large harbour on the coast of England.

151. When you speak of the west coast of England, do you include the whole of the coast up to the Solway Firth?—Yes. As the Committee are aware, Holyhead Harbour is all but completed, and already affords very valuable refuge. I believe vessels to the number of 2,000 now take refuge there every year, even in the unfinished state of that harbour, and ten times that number will do so before long if there is room for them.

152. Are you aware that the rapid extension of its use has forced upon the Government from time to time an extension of the works as they have proceeded?—I am quite aware of it. I think the Government have acted most wisely in extending it; money cannot be better laid out; it will prove a most valuable harbour in every respect.

153. With regard to the Isle of Man, in the Irish Sea, have you any suggestion to offer with regard to that?—Yes; I think a small harbour of refuge at Douglas, in the Isle of Man, would be very useful.

154. There is already a good trading harbour at Douglas?—Yes, there is a tidal harbour, but something more is requisite. There is a large number of vessels that pass on their way to Liverpool, and occasionally wrecks occur from want of more shelter.

155. You do not speak of the trading harbour?—No, I speak of one entirely outside. A pier or breakwater erected on the south-east side of the bay would be a very valuable addition to the Isle of Man, and a Government grant in aid of about 30,000 *l.* would, I believe, accomplish it.

156. You speak, not only of the trade of the Isle of Man, but of the general traffic passing the Isle of Man?—Yes; the Isle of Man I look upon as the beacon of the Irish Sea.

157. On the west coast of Scotland you do not think there is any necessity for a harbour of refuge?—No, it has so many natural harbours.

158. Going to Ireland, is there any thing on the west coast of Ireland that you think it necessary to call our attention to?—I think not; there are many natural harbours there, quite sufficient, in my opinion, for the present traffic.

159. Proceeding to the north coast of Ireland, is there anything which you can suggest as necessary to be done there?—I think not. Lough Swilly is a natural harbour of refuge; Lough Foyle, leading up to Londonderry, is another natural harbour. Belfast has been improved so greatly, that it may be called a harbour of refuge; there is no harbour in Ireland which has been so much improved, and in which so much enterprise and public spirit have been shown.

160. Belfast Lough is a good one?—That offers a natural harbour of refuge, but they have very greatly improved the approach to the city.

161. Coming down the east coast, is there any point on that coast to which you wish to direct our attention?—There is the natural harbour of Lough Larne, which is very useful.

162. That is also a natural harbour?—Yes. The next place that has been very much pressed for a harbour of refuge is Ardglass; that was reported on by Captain Denham and Mr. Rendel as far back as 1852. Mr. Rendel recommended two breakwaters, one on the east and the other on the west side, sheltering an area of about 75 acres, with a depth exceeding 12 feet at the time of low water, at a cost of 240,000 *l.*

163. Was

Capt. *J. Washington*, R. N., F. R. S.

13 July 1857.

163. Was there not a proposal for some small works at Ardglass within the last four or five years?—Yes; to re-erect the pier that was washed down.

164. That was for the purposes of trade?—Yes, as well as for a great many fishing boats which resort to Ardglass.

165. You do not speak of the report with respect to those particular works, but to a further report?—Yes; with respect to a breakwater outside, a part of the plan was to restore that pier-head, which ought to be done.

166. In your opinion, would that be the best point on that part of the coast for a harbour of refuge?—I do not think a large harbour is required; I think the present small harbour and the pier head should be restored and put in proper condition; but I do not think it is a fit place for a large harbour of refuge; it is not required.

167. On what other part of the coast do you think it more necessary to have one?—Immediately south is the almost natural harbour of Carlingford Bay; that has an entrance at this moment of 18 feet at low water spring tides; but the entrance is tortuous; it could not be run for by vessels in a gale of wind. An outlay of 20,000*l.* would make that an admirable harbour of refuge; and it is in a spot where it is as much wanted as any other on the east coast of Ireland. *Vide* Plan at the end.

168. The Bay of Dublin affords a natural harbour, not far from it?—Yes, 50 miles south of it.

169. Would the improvement of Carlingford Bay supply all the deficiency which at present exists on that immediate part of the coast?—I think it would; Carlingford is separate from Dublin in this way, that as to vessels which come north about bound to Liverpool, Carlingford would be a harbour of refuge for them, while they would not think of going so far south as Dublin if they could avoid it.

170. And also for vessels going to the south?—Yes.

171. You think that an improvement of Carlingford Bay would supply all the defects which at present exist on the north-east coast of Ireland?—A great many of them, and it is a small outlay that would confer a large benefit.

172. Can you give the Committee any information about Howth Harbour?—Unfortunately that is sanded up, owing to the Baldoyle Sand pointing right into its entrance; it is little used except for fishing boats.

173. There has been a great deal of expense incurred in making that harbour?—I believe a great expense.

174. Dublin Bay has no great depth?—The want is provided for by the public harbour of Kingstown; that is an useful harbour of refuge as well as a packet harbour.

175. Proceeding down the coast, is there any point which you wish to call the attention of the Committee to?—Any improvement that could be made at Wexford would be valuable.

176. There is a natural harbour at Wexford?—Yes, but with a bad entrance; if that entrance could be improved by a small outlay in aid, it would do a great deal of good.

177. Is there not a bar?—Yes. The Committee will notice that there is a very large amount of wrecks at that spot; it is the turning point at the south-east point of Ireland.

178. That is more important than the entrance to Waterford?—I do not say more important; it is nearly of equal importance, I think.

179. Have you any idea of the cost of the improvement you think necessary in the entrance to Wexford?—It so happens that there is a sum of 20,000*l.* laid apart at Wexford for improvement, placed under the charge of the Admiralty, and an addition to that of about as much more might render it a very valuable harbour.

180. Would that be available for everything?—No; only at tide time, and then only for vessels of a limited draught of water.

181. You would regard it as important, not with reference to the Irish trade alone, but as regards the general trade of the Channel?—Yes; it might be of use to the general trade of the Irish Sea.

182. Now, coming further south?—Further west, on the south coast, Waterford is in very much the same state as Carlingford, a very fine natural harbour, but with a flat or bar, having only 12 feet over it at low water spring tides. To dredge a channel through that to a depth of 18 or 20 feet, at a cost of 20,000*l.*,

Capt. *J. Washington*, R.N., F.R.S.

13 July 1857.

would make it a good harbour. There are no two spots in the whole of the United Kingdom at which good harbours of refuge could be got at so small an outlay as at Waterford and Carlingford; 20,000 *l.* laid out on each of those would render them available at all times for the greater part of the vessels that navigate the Irish Sea.

183. Waterford would be important for vessels coming in from the southward?—Yes.

184. Is there any other part of the coast you have to make any observation upon?—Westward, you come to Cork, a natural harbour of refuge; it is unnecessary to touch that. Then Bantry Bay is a natural harbour, as are all the inlets in that direction.

185. You have no observation to make on them?—Nothing in the present state of the traffic. Might I be allowed to return to England for a moment. In speaking of Tees Bay, I include Hartlepool, Teesmouth and Redcar. I was not aware that I had mentioned Redcar. A design for a harbour of refuge there has been made by Mr. W. Brooks, C.E., as far back as 1832, and it is right the Committee should know that it was approved of by Sir William Cubitt in the year 1835. Mr. Brooks proposed two piers, to include an area of about 195 acres, with a depth of 12 feet and upwards, and 130 acres, with a depth of 18 feet and upwards, at low water spring tides; his estimate of the total cost is 340,000 *l.*, and it could be completed in about seven years. Redcar, I may say, from the ledges of rock that run off there, offers very great facility for the erection of breakwaters; the inside of the harbour has, I fear, some rock in it; still, when the subject of an exact site for a harbour is considered, Redcar must be very carefully examined.

186. Mr. *Liddell.*] You have mentioned that Tees Bay you have taken as the focus of the wrecks on the north-east coast?—Yes,

187. And that a quarter of the total wrecks occurring on the coast of Great Britain occur between Flamborough Head and St. Abb's Head?—Yes.

188. Have you ever further analysed this extent of coast so as to ascertain any precise radius, we will say of a limited length, to ascertain the number of wrecks occurring within that radius; I allude to the radius of a few miles north and south of the Tyne and Wear, taking that portion of the coast, in order to ascertain what proportion the number of wrecks bear to the one-fourth on that extent of coast?—Not precisely with that view, but wherever there is a large amount of traffic, as there is in the Tyne and Wear, there would of course be a large amount of casualties. If you look to the Wreck-chart you will see that the entrance to Liverpool shows a greater number of casualties there than at any other place. The next to that is the Tyne, the traffic being enormous; I believe as many as 44,000 vessels go in and come out of the Tyne every year, if not more, and it might be expected that a great number of casualties would happen. At present a large harbour is in progress at the mouth of the Tyne.

189. Have you looked with any confidence to its becoming eventually a harbour of refuge?—It can hardly become a harbour of refuge, but it will be a very valuable addition to the present tidal harbour.

190. What is the greatest depth at low water spring tides that you can hope to obtain in that?—At present the depth is from 6½ to 7 feet at low water; and the works, as at present estimated for and sanctioned, will not, I think, add to that depth. If the whole project is carried out, and the pier-heads placed (as designed) in 13 feet at low water, probably there will be some gain on that latter depth, thus giving from 28 to 30 feet at high water spring tides. I am not sanguine enough to expect more. But that will be ample for the trade of the Tyne.

191. That would not be available as a harbour of refuge for vessels plying on that coast?—Certainly not at low water, but it would be the means of saving a great many of the casualties that occur on the south of the Tyne. Vessels now run for the entrance, and go on the sands. All those sands will be included within the limits of the piers, now building, when finished.

192. Are you aware of the number of lives that have been lost by vessels running on those sands?—Not exactly; but I know that there are many, notwithstanding the excellent establishment of life-boats at Shields, which are as well managed as anywhere along the coast, and their good management does honour to the skilful and hardy pilots, who are always ready to risk their lives in them when a vessel is in distress.

193. You

193. You have said that the Harbour of Hartlepool would be the means of saving a vast number of vessels plying on that coast, and that the most dangerous winds we have are from the south-east; a gale springs up from the south, usually veers to the northward; but supposing light vessels caught by that gale north of the Tees, in that case would a harbour of refuge at the Tees be of any use?—Yes, they would run for it with a north-east gale.

194. You having stated that the gale springs up in the south-east, would not those vessels be endangered in a south-easterly gale, running north of the Tees?—Vessels north of the Tees could not run for it against a southerly gale, but they might run back to the Tyne or Wear at high water.

195. Have you any idea of the number of vessels which leave the two ports of the Tyne and the Wear in the course of the year?—I think 22,000 vessels leave the Tyne, and I think about 10,000 leave the Wear in the course of the year, and as many return.

196. Do you know their average tonnage?—Probably from 150 to 200 tons.

197. Would that harbour of which we have spoken, that is in progress, be useful for many of these vessels?—Yes.

198. For a considerable portion?—Yes, the greater part of the vessels are colliers bound to the Thames, or returning from the Thames to the northern ports, and therefore must pass immediately by Tees Bay.

199. I am speaking of that harbour at the mouth of the Tyne; would that harbour when finished be available, taking the average tonnage of the vessels for many of those vessels, in case of stress of weather?—Not at low-water spring tides, but from half tide to high water, certainly.

200. Mr. *Macartney*.] Can you state the amount of anchorage ground at low water within the bay of Carlingford, for vessels going in at night?—I cannot state the amount, but it is a very large area, quite sufficient for all purposes.

201. Is it well lighted?—I believe so, but the change in the channel may require a change in the position of the lights. It would be a fair harbour of refuge if the entrance were only deepened.

202. Liverpool has more than once memorialised the Admiralty in favour of some project to make that available when vessels have been blown out of their course; sailors are sometimes not very steady in coming out, and several vessels have been lost upon the Irish coast, which with that harbour might have been avoided?—I believe Liverpool has memorialised, and I think Glasgow has also; several petitions have come to the Admiralty respecting Carlingford.

203. And you have had detailed reports on the facility of making that, at a very small outlay, a proper harbour of refuge?—Yes, there is a sufficiently detailed report by Mr. Ramsay, C.E., showing that a deeper passage could be dredged into Carlingford at a cost of 23,000 *l.*

204. What is the nature of the soil?—Clay, I believe, with boulder stones.

205. There have been applications for that immediate district between Belfast Lough, which is considered the northern safety harbour, and Dublin Bay; there have been applications for other places to be considered fit for a refuge harbour, a place called Skerries?—Yes.

206. What was the amount of the estimate when that matter was considered, to make it a packet station, at the time of the Irish Parliament, and subsequently when brought under the notice of the Admiralty; can you state the amount of the estimate for making a refuge harbour at the point of Skerries?—I do not recollect ever to have seen an estimate.

207. Do you know the place?—Yes.

208. Do you know the facilities?—The facilities are favourable.

209. Is the depth of water good?—Yes, as far as I remember.

210. In the manner in which you have gone over the different places, could you put a reasonable sum for making such a harbour as would give the trade between the two bays that I speak of, the safety harbour at Belfast and Kingstown, for a refuge harbour such as is required?—Without referring to papers I could not; but I am satisfied that something like 150,000 *l.* would do it, and possibly much less.

211. Lord Naas having called attention to the Skerries Rocks on the north-east coast of Ireland, has there ever been any scheme proposed to the Admiralty for the purpose of making what you call a refuge or a safety harbour there as the last in connection with the voyage to America?—Not that I am aware of.

212. You have had no official knowledge of it?—No.

Capt. *J. Washington*, R. N., F. R. S.

13 July 1857.

213. Mr. *A. Smith.*] You spoke of the very wholesome effect of the new Mercantile Maritime Act; how do you account for the great increase of collisions which appear, according to the statement here?—Partly to the great increase of traffic, partly to greater competition in trade; but I am disposed to think, that in the earlier Wreck Returns many cases of collision were not recorded from want of the proper machinery to obtain the information. I cannot lay it to greater neglect, because I think there is a better look out kept now than there was three years ago; very considerably better; captains knowing that there is an enquiry pending over them, are more careful; still I think much arises from the great increase of steam vessels, and the greater recklessness caused by competition.

214. There is no distinction, whether they are steam vessels or sailing vessels, as to the collisions; have you any data what they arise from?—The record from which this return is compiled would easily show it. The wreck return has passed out of my hands; for the years 1850, 1851, 1852, 1853 and 1854; it was compiled at the Admiralty under my immediate direction; it is now compiled by the Board of Trade; the return could easily be got, I have no doubt, and I will endeavour to obtain it.

215. Speaking of the great advantage of Wick as a site for a harbour of refuge, I did not understand what would be the advantage over Peterhead?—It is nearer the turning point for Pentland Firth.

216. Have not vessels the Orkneys there?—Yes, on the north side.

217. Whereas nearer Peterhead there is apparently no harbour nearer than the Firth of Forth?—None nearer; the present trading harbours of Peterhead affording very good shelter at tide time, but not a harbour of refuge.

218. Only for small vessels?—The whalers fit out there, and leave and enter at high water; it is not available at low water. When I speak of a harbour of refuge, it will be understood that I mean one that can be run for at all times of tide, by night or by day.

219. You spoke of the probability as regards Falmouth of the packets moving westward?—Some of them.

220. What style of packet?—Some of the Transatlantic, some of the Brazilian or African, some of the great sea packets.

221. On what ground do you suppose they would be likely to be sent there?—I think, as soon as the railway is completed to Falmouth, the mails being landed there will arrive earlier in London, Manchester and Glasgow, and the vessels avoid the risk of running up Channel, which is a risk, as was shown by a large steamer being wrecked in the spring on Kimmeridge Ledge, almost at the entrance of the Needles.

222. The packets, if they deliver their mails at Falmouth, would still come up Channel under all circumstances?—Possibly they would; but I am not prepared to say that they would, nor do I see why they should.

223. The packets, which in a great measure depend upon their cargoes more than their mails, must they not come to the nearest point where they wish to be landed?—Yes, they would; I do not know whether Southampton would afford much greater facilities; I suppose it would for landing.

224. There is a difference in the land journey with reference to the point for which they would be destined?—If it comes to the metropolis.

225. I do not exactly understand on what ground you suppose the packets would be likely to be sent to Falmouth, except for the delivery of the mails?—It was the delivery of the mails, and landing passengers, that I principally thought of; it was on that ground chiefly, and to avoid coming up Channel.

226. Speaking of the north coast of Cornwall, you mention St. Ives' Bay as the point that would be most desirable for a harbour of refuge; I do not exactly understand what you apprehend would be the great advantage of St. Ives' Bay over the more central position; you have an immense length of coast from St. Ives' Bay up to Ilfracombe?—Yes.

227. And there is no harbour whatever there?—No, there is not; but if you will look at the Wreck-chart, the great number of wrecks are at the Land's End.

228. These are wrecks chiefly out at sea; how would a harbour of refuge prevent these wrecks?—It might not prevent wrecks at sea; it would be a harbour for vessels to run for that are pressed by stress of weather on that coast.

229. These vessels are principally those that have foundered?—The detached

dots

dots on the chart, but not those on the shore. One year is no criterion; 1,550 lives were lost one year and 500 another, therefore to take one year would mislead us.

230. St. Ives' Bay as it is, is a good harbour, I believe?—Very fair.

231. Under certain winds?—Yes.

232. In what winds?—The off-shore wind, south-west and south-east; but from west round northerly to north-east it is exposed.

233. It is not exposed to the north-west?—At north-west, I think it would be.

234. This map shows a great number of wrecks; you see the central point at this plan; what I want to know is, what is the advantage of St. Ives' Head over Trevose, or some point upon that part of the coast?—St. Ives offers very much greater facilities for making a harbour. I mentioned Towan Head or New Quay, which is one of the spots at which a harbour was proposed.

235. The number of wrecks on this map is under Trevose Head, towards Padstow?—Padstow would be a very difficult place to deal with; but doubtless it might be improved.

236. Sir *Robert Ferguson.*] You have said there are plenty of harbours in Shetland and Orkneys, some at Thurso and Scrabster, and you recommend a large outlay of public money, to the amount of 169,000*l.*, in Wick Bay; what part of the trade of the country do you expect to be benefited by this outlay in Wick Bay, or to use it as a harbour of refuge?—It might be used as a harbour of refuge by every ship which passes through the Pentland Firth.

237. You are aware that a great part of the trade of Scotland is from the Baltic and the north?—A great deal of it is.

238. No part of that could derive benefit from a harbour of refuge?—Vessels returning from the Baltic not uncommonly make the Orkneys and Shetland; not ten years since, 35 vessels were wrecked in returning from the Baltic, for all of which Wick would be available as a harbour of refuge, if they could have reached it.

239. In your opinion, it would be most valuable in south-easterly winds?—In any easterly winds it would be available. The whole of the whale ships and the whole of the traffic to Archangel pass there.

240. What is the fair wind through the Pentland Firth?—Either east or west, whichever way they happen to be going.

241. The Tay itself, I believe, is not very easily taken?—The Tay has a very fair entrance; you might almost call it a harbour of refuge to be run for at all times; there is a depth of 22 feet at low water spring tides into the Tay.

242. Mr. *A. Smith.*] Are there any data that one could have by which one could see the number of vessels that passed round the different points of the coast?—The traffic of the coast is very difficult to get at, but I think it may be done.

243. The returns from the lighthouses?—They would have done it a few years ago, but that is so no longer; the light dues are now thrown into one fund, and they do not keep an account of the number of vessels that pay dues at each.

244. With regard to a vessel going from the Thames to the Firth of Forth, there would not be a separate charge for each light which it passed in the return rendered?—Not at present; it would have been so four years ago, but since the light dues have been put into one fund, that is not so; I do not see why some machinery might not be set on foot to obtain complete returns. The official returns from the Tyne show 26,000 vessels clearing out, and 6,000 entering, or 32,000 a year; now, I believe, that about 45,000 vessels enter and leave the Tyne annually; there is no return which will show that amount unless the harbour-master keeps an account for his own purposes. It would not be difficult to set some machinery in motion to get such returns; I think in these inquiries it would be very useful. No returns which we have show the real traffic of the ports; I have some vague estimate that about 150,000 vessels a year pass along the east coast of England, but it is founded upon such uncertain data that I am hardly prepared to lay it before the Committee.

245. In the shipping returns there are certain returns which are given; we will take the port of Sunderland?—They are from the Custom-house, I believe.

246. The number of vessels entered inwards is 1,381, the number of vessels leaving that port is about 11,000?—Yes; that makes about 12,000 altogether;

Capt. *J. Washington*, R. N., F. R. S.

13 July 1857.

gether; whereas the real number is about 19,000; no vessel in ballast is entered in that list; it is only vessels in cargo. As all colliers return light to the Tyne and Wear, we lose sight of them entirely, which, in a question of this sort, is of more importance than anything else, because it is the light vessels that get wrecked.

247. Mr. *Traill.*] You recommended some little outlay at Wexford and Waterford?—Yes.

248. I want to ask a question in connexion with the American trade coming in and out of Liverpool; the worst wind in the Irish Channel is the north-west?—Yes.

249. A ship coming in makes Cape Clear, and then runs to the Tuskar Light?—Yes.

250. No ship ought to go inside the Tuskar Light?—No; they had better keep outside.

251. If the prevailing wind is a north-west wind, should she not run straight for Milford Haven?—It would be a very good point to run for.

252. Then in coming the other way down the Channel?—She may turn and go to Waterford, which is very much nearer, and a weather-shore, and one to which a ship would naturally go.

253. Would she like to turn, that is the question; is it not better to run; you saw what they did the other day in turning by the Cunard steamer; they nearly lost her; they do not like turning in a gale of wind. Milford Haven would be the best to run for?—That is a harbour of refuge under her lee; she could run for that with ease.

254. With respect to the north passage round Ireland, very few of the American ships or even the American steamers go out north or come in north?—Not many; some do.

255. They never do after the month of August?—Probably not.

256. In fact, the American mail steam packets, none of them pass outside the north of Ireland, except during the months of June, July and August, do they?—I believe not.

257. They neither go in nor come out of the north of Ireland?—No, not those steamers?

258. Nor any timber trade from Canada?—I think with a fair wind they would go that way to Liverpool.

259. Not one in a hundred, I should think?—I am not prepared to say; there is the remarkable instance of the Great Britain, which was going that way, and she got into difficulty.

260. You recommended some outlay at Douglas; you prefer that to Ramsay Bay?—I think Douglas would be more useful, all circumstances considered.

261. Would you run a pier out in Douglas on the north side?—No; on the south side, from what is called Two Gun Battery, I think.

262. Then, with respect to passing through Pentland Firth, having a harbour of refuge at Wick, I presume that the ships with Baltic timber coming to Liverpool and Glasgow, they do not go that way, but run for Hull and Grimsby, and land their cargoes there?—Yes, chiefly.

263. The ships would not be brought round with the timber?—No.

264. Lord *John Hay.*] Do you not think that some harbour of refuge is necessary on the south-west coast of Scotland?—I hardly see the necessity for it; the Clyde itself is a natural harbour of refuge. If you will name any particular point, I will tell you.

265. Did I understand you rightly to say, that you thought the harbour which the Fishery Society proposed to make at Wick would be efficient in bad weather to enable boats to go in at low water?—Yes, boats could go in at low water, undoubtedly; there are 15 feet at the entrance.

266. Is it not the case, that, with a south-easterly gale, the sea breaks across the harbour outside of the proposed harbour?—It is possible it may break in three fathoms; in heavy gales it may break in four or five fathoms.

267. Is the depth at that point four fathoms?—Just outside the proposed harbour; at the entrance, there would be only 15 feet at low water.

268. And the sea would break at the entrance?—Yes, probably at the entrance.

269. With reference to vessels, instead of running to Wick in bad weather, supposing a harbour was constructed there, and it had been thought possible to run to the Orkneys, do you consider that the strong currents and thick weather,

and

and the difficulty of making the land of the Orkney Islands presents a considerable objection to vessels running in that direction?—No doubt the notoriously strong currents of the Pentland Frith are a drawback to that navigation; no prudent man would go to it if he could get a harbour elsewhere.

270. Supposing a fleet during the time of war was cruising in the North Sea or German Ocean, is there any place that they could run to for protection in bad weather, in the case of steamers, for the purpose of saving their coals; is there any place they could go to except Cromarty?—Nothing but Cromarty.

271. Then you consider, for national purposes, that is, with regard to the protection of the fleet, that Wick is a very important position for a harbour?—A very important position; and it will be absolutely necessary, in the event of another north of Europe war, to have some station thereabouts.

272. Is there any harbour where vessels could lie for the purpose of watching a fleet of cruisers coming round the north of Scotland?—None at all.

273. You said that the harbour of Larne, in Ireland, was a good harbour, what is the depth of water?—I should think it is four fathoms at the entrance.

274. What is the objection to Strangford as an harbour?—Lough Strangford has very rapid unmanageable tides.

275. The water is deep?—Yes, ample.

276. And the harbour is an extremely fine one inside?—Yes, a very fine one inside.

277. Mr. *Hassard.*] I think you stated that a north-west wind is one which vessels meet with in going up the Irish Channel?—The north-west is occasionally a very severe one.

278. If a vessel were to run to Milford, and the wind were to shift to the west, would she not be on a lee shore?—She would be on a lee shore, but with a good harbour under her lee.

279. Supposing Liverpool to be her port, and she were at Waterford?—She could come out, and run to the north-east with a flowing sheet.

280. And have a fair run to Liverpool?—Yes, certainly. I did not go further into that subject when the question was asked me, but I should undoubtedly put back to Waterford, and not run to Milford if Waterford were available.

281. Mr. *Traill.*] I asked you the question, because I happened to be out in a gale of wind, and the question was which shall we run for, and it was fixed that we were to run for Milford?—There is, at present, a bar at Waterford. I am supposing Waterford to be improved at a small outlay; at present, Waterford is out of the question for ships of a certain draught.

282. Mr. *Hassard.*] You said there were a good many wrecks near Wexford?—Yes.

283. Do they occur at Blackwater Bank?—Yes.

284. And some on the rocks at Tuskar?—Yes.

285. In what direction is it proposed to make the new entrance at Wexford, is it outside or inside?—The old Hantoon Channel I think will be deepened; and, if possible, a north-eastern entrance also be obtained.

286. The former will be accessible in a south-west wind?—Yes; I think it is desirable to preserve both channels if possible, but it is a difficult problem.

287. Do you know the depth of water in those channels?—At present, seven feet at low water.

288. What is the nature of the bottom?—Sand and clay, I believe.

289. Do you happen to know the rise and fall of the tide there?—Unfortunately it is very small, not six feet.

290. Supposing a vessel drew very nearly the amount of water there at high water, she would have a good rise and fall of tide, and she would be able to get out; the rise of the water would be higher if it were a lee shore, if the wind were blowing into that port; supposing a vessel to run in at the top of high water with a south-west wind, it would be the maximum quantity of water upon that occasioned by the wind as well as the tide?—I do not quite understand the question.

291. If the wind shifted, even with a high tide, there would be a lesser quantity of water upon the bar?—There might be a trifle, the tides are irregular; the wind may add to the height of the tide, but the tides in themselves are quite independent of the wind. On the south-east coast of Ireland, generally, there is a very small rise and fall.

Capt. *J. Washington*, R. N., F. R. S.

13 July 1857.

292. Do you know the nature of the bottom of Waterford Harbour?—It is clay, I am informed, at Duncannon bar.

293. You say the depth of water is about 13 feet?—Yes, at present.

294. That is the minimum depth?—Yes; I always speak of the minimum depth at low water of spring tides; there is a rise of 12 feet.

295. With a southerly wind there would be a foot more water?—Yes, I have no doubt there might.

296. With an easterly wind the tide would not run out that depth?—Possibly not; that would be coming to a nicety that no vessel running to a harbour of refuge would pay attention to; you must have plenty of water under the keel for safety.

297. There is plenty of room, I believe, above the bar, for the vessels to get over?—Yes.

298. Do you know anything about the probable cost of cutting a channel through the bar?—At Waterford, the outside would be 20,000 *l.*; I think it might possibly be done for less.

299. Are you aware that the vessels coming down from Liverpool meet with a south-west gale, and have to run back?—Frequently, no doubt.

300. Do you think that if a vessel is as far down as Waterford it would be a great advantage to be able to run there?—Yes, it would be a very great advantage indeed.

301. Lord *A. Vane Tempest.*] I believe you stated that between St. Abb's and Flamborough Head, which is 150 miles, there is no harbour into which ships can enter at low water?—I did say so.

302. From that coast forming one long independent bight or bay, is it not a most dangerous line of coast in easterly and north-easterly gales?—Extremely so.

303. And is it not your opinion that a refuge harbour, accessible at all times, should be provided at some point down the coast between the Tees and the Tyne?—It is absolutely essential.

304. Between the Tees and the Tyne?—Including the Tees, do you mean?

305. Yes?—Including the Tees and Redcar, in Tees' Bay.

306. I believe you stated to the Committee that you have no authentic data by which you can give statistics with regard to the shipping on that part of the coast?—I know from the wreck-charts, that during the five last years there have been on that district of coast alone 337 total wrecks; 409 vessels wrecked, with serious damage and obliged to discharge, and 101 cases of collision, of which latter 29 cases were attended with total loss. I believe that such an amount of wreck on so short a district of coast is unparalleled in any part of the world.

307. I have seen a statement comparing the trade on that part of the coast with the trade of Ireland and the trade of Scotland; could you inform the Committee of the comparative statement with regard to the trade on the Durham coast, including the harbours of Sunderland, Shields and Newcastle?—It must be thereabouts; but I cannot say exactly.

308. Then, in your opinion, it is most essential to have a harbour of refuge formed on that part of the coast?—Yes, most essential; it should be at Tees' Bay, of all places, looking at the amount of wreck and loss of life; it is a reproach to the nation that there is no refuge harbour somewhere there.

309. I believe you have stated that Hartlepool is also an eligible place for the formation of that harbour?—I think it will prove to be the most so; I should recommend a strict inquiry into the sites of Tees' Mouth and Redcar; my present belief is founded on the reports of the late Mr. Rendel and of Mr. Calver, R.N. At Christmas last, understanding that a Committee would be likely to meet in the course of the year, I called upon Mr. Calver to prepare a report as to where he thought would be the most likely spot for a refuge harbour on that coast; this he has done; and I now lay the report before the Committee, accompanied by the chart you have seen.

Vide Appendix.

310. Mr. *J. Clay.*] You have stated that there was noticeable improvement in the characters of masters and mates, to which may be attributed the greater safety of vessels since the Mercantile Marine Act?—Yes; and I hear so from all quarters.

311. Do you speak of their general sobriety and good conduct, or of their theoretical knowledge and general seaman-like qualities?—Both.

312. And is that from your own personal experience?—It is partly from my own personal experience, and partly from conversations which I have had with others; I am in a position to hear what is doing, and that is the general account I have.

313. In speaking of Wick harbour, you spoke of sudden squalls being common on the north-east coast of Scotland; they generally blow from one quarter, do they not?—The dangerous gales I allude to are from the north-east and south-east; the suddenness of the North Sea gales is proverbial.

314. Would not the larger plan which is proposed for Wick Harbour be a complete protection in such a case?—Yes; as it would be accessible in any point of the wind from south-east to north-east.

315. Now to come to Tees' Bay; I understand your mind not to be entirely made up as to Hartlepool being the best position?—I would rather not hazard an opinion, when I might see reason to change my mind; the subject requires very careful consideration.

316. Now, considering the very great number of wrecks there, and ships in difficulty, by merely running 30 or 40 miles, may make the Humber?—No, they cannot get past Flamborough Head, if you are supposing them to be north of Flamborough head. The chart shows that no vessel once within the line of embayment can get outside it. It is either Tees Bay, or to run on the beach.

317. The facility for running for the Humber does not apply to the 150 miles between Flamborough Head and St. Abb's?—No, not at all; with the wind at east, the black line on this chart shows it, the vessel must go ashore somewhere, and most probably in the bag of the net. This chart was prepared by Mr. Calver, to accompany his report; it shall be reduced for this inquiry.

318. With regard to St. Ives' Bay, is there a report of Mr. Rendel as to the probable cost?—There is one by Captain Vetch, of the Royal Engineers.

319. What was the sum required?—I think it was 175,000 *l.*

320. Now looking to the double purpose of works of this kind, namely the decrease of the danger to shipping, and the increase of the facilities of national defence, the different points you have named as being worthy of consideration, to improve the harbours of refuge, which do you take to be one of the most pressing importance, looking to the double purpose I have mentioned; I am not speaking of Dover and Holyhead?—With respect to the saving of wrecks, Tees' Bay beyond every other site.

321. And with respect to national defence?—I think at Wick, probably, it is most required.

322. Mr. *Traill.*] Have you formed no opinion as to the amount of tonnage that passes the Pentland Firth?—I think it is about 500,000 tons annually; that is the only account I have; it is thereabouts, but it may be 750,000.

323. What are the principal ports on the east coast from which vessels sail to go through the Firth?—All north of the Firth of Forth, all whalers that go from Hull pass through; all the Archangel vessels pass close to the entrance of Pentland Firth, they do not go through it, and vessels bound to the Canadas and America, everything from the Humber northward.

324. And from the west coast?—Coming to the east, vessels from the west, bound to the Baltic, would pass the Firth of Forth.

325. Mr. *A. Smith.*] Is not the Baltic trade mostly carried on in the summer season?—Yes.

326. Mr. *Traill.*] You stated that there were returns from the lighthouses of the vessels going in every direction?—Yes, formerly.

327. It might be of use to get the last return applicable to the portion of the coast I am now speaking of?—I think it would be very useful, and I propose to do so.

328. You have mentioned that, about this time, there are 1,700 boats on the coast of Caithness fishing without any harbour of refuge; to what extent do you think this projected harbour of Wick would accommodate boats?—In the case of a south-east or north-east gale, the large harbour would be a shelter for every one of them.

329. The works projected?—Yes, the large harbour.

330. According to the Bill proposed this Session?—The small harbour now projected would afford shelter to a great many of them, supposing it carried out.

Capt. *J. Washington*, R. N., F. R. S.

13 July 1857.

331. But still there would be an objection to accessibility, arising from the sea breaking?—Yes; there is a depth of 15 feet at the entrance.

332. Mr. *Kendall.*] What is the value of Falmouth now as a harbour of refuge?—It is very fair; many vessels can run for it.

333. The water is shallow?—No, it is of good depth.

334. Has there not been some talk of another harbour near Penzance?—Yes, in Mount's Bay.

335. Is the water deep there?—Yes.

336. Is there a great facility for making a breakwater?—Yes, at Penlee Point; everything, however, would have to be done. Falmouth is ready made, it only wants a little internal improvement to make it available. I do not think a national harbour is wanted in Mount's Bay; I mean the outlay required for a large national harbour could be hardly recommended, but a fishery harbour might be very valuable indeed, and the fishermen with their fine boats well deserve it.

337. They have made large improvements at Penzance?—Yes; further to the southward, in Guavas Lake, at Penlee Point, or off Mousehole, there is deeper water and greater facility for a fishing harbour.

338. On the western coast you prefer St. Ives to New Quay?—The estimate for New Quay is 711,000 *l.*; Padstow is a very difficult place to deal with; it has a violent race of a tide.

339. When once you are in you are safe?—Yes.

340. Do you know whether there is a bar of sand there?—There is a very extensive sandbank, but not a bar right across the entrance, as far as I remember.

341. It is a very narrow entrance?—Yes; and the tide runs through it, like a race; it is a difficult place to take.

342. At New Quay a private individual made a large outlay?—Yes.

343. Was it with a view of Government taking it up afterwards?—Possibly.

344. Would it answer if carried out?—Probably it might; it is a large harbour projected into deep water, and at a heavy expense; the estimate was 711,000 *l.*

345. You think St. Ives, as it is, not on the whole objectionable?—No; it offers great facilities.

346. Is it better than either of the other two?—Yes.

347. Sir *Frederick Smith.*] What ports do you think vessels are destined for, that take refuge at St. Ives?—The whole of the trade of the Bristol Channel and the Irish Sea; it would be useful for that, but for the Bristol Channel trade particularly; vessels coming up with a south-west wind, and caught with a north wind, they would go to St. Ives.

348. Would they not run round to Falmouth Harbour?—They might possibly; the Land's End is an awkward piece of navigation, and there are outlying rocks, and the Scilly Islands; if a vessel were once to the northward of them, she would prefer going to a harbour to the northward.

349. A great many vessels have been wrecked on the north shore of the Bristol Channel; do you propose nothing with regard to that?—They are not vessels that are wrecked so much from the stress of weather as from the number that crowd into the coal ports. At Swansea Bay they seem to have had three in the last year; the vessels crowd around the coal ports, and a number of wrecks do occur; but having Milford so close at hand, and King Road by running free up the Channel, one could hardly recommend a harbour of refuge there.

350. You think it is sufficiently provided for by Milford Haven?—I think, if at any place, Swansea Bay would be the place, off the Mumbles Head.

351. Do you know what loss of life has taken place on the north shore of the Bristol Channel, within the last five years?—No, I do not; but it could be got if you wish it; I am not aware at present what it is, but I could furnish the Committee with it.

352. In the entrance of the Orkney Islands, is there sufficient depth of water for vessels of large tonnage?—Yes; in Stromness.

353. What sort of vessels could be taken in there?—The largest.

354. Supposing funds could only be found for one harbour, which would you give the preference to, Wick or Peterhead?—Wick; it would be the means of saving a great number of lives, and I look upon life as the object of first importance;

portance; but it is a part of the coast which is much more unprovided for; Peterhead already posesses very fair tidal harbours, and in point of national defence, Wick would be undoubtedly superior to the other.

355. I would ask you the reason why?—It is a more advanced position; vessels from Wick, or immediately on the north point of Scotland, they can go either east or west.

356. What is the difference between the two, as regards a North Sea fleet?—As far as a North Sea fleet is concerned, none; from Peterhead it would be the same.

357. What protection does the mouth of the Tay afford?—Much, but not as a positive refuge harbour; it has a very fair entrance, with 22 feet depth at low water.

358. Could it be improved for the purposes of commerce?—I doubt it: it is an entrance between two sands, and it would be safer to leave it alone.

359. Is the Firth of Forth a refuge in easterly gales?—Yes; by running far enough up, to St. Margaret's Hope, there is a perfect shelter.

360. Mr. *Liddell.*] The Wreck-chart points to Yarmouth as a very dangerous spot on that coast, and you have spoken of the sands there; are they movable sands?—In the main, no; they do shift a little; the main body of the sand remains fixed. Now and then a fresh channel opens out, and another closes.

361. It would not render it necessary to carry out a plan that Captain Vetch has recommended for the Goodwin Sands?—No, I do not think it advisable.

362. Tees Bay, you say, is the only extensive work you would recommend on the East Coast, but that great benefit would be derived from the improvement of small harbours in various parts?—Yes, certainly, very great.

363. Will you state how, in your opinion, that improvement should be effected, whether by grant of public money or how?—By a grant of public money in aid of the private funds to be raised; very much the same as the fishery harbours have been improved on the coast of Scotland. It is almost incredible the amount of good that has been done by the small sum of 2,500 *l.* a year that has been appropriated by the Fishery Act for that purpose.

364. Mr. *Lowe.*] The sum you mentioned altogether is about 1,200,000 *l.* for your whole estimate, the six works you recommend?—Yes.

365. Over how many years would this be spread?—I should hope only seven.

366. Do you think it likely to be exceeded in point of amount?—It is very possible.

367. On what data are these estimates founded?—Mr. Rendel's is the largest. £. 800,000 for Hartlepool is on Mr. Rendel's estimate; St. Ives is on Captain Vetch's, and Wick on that of Mr. Coode, C. E.

368. Do you know the kind of works that are contemplated at Hartlepool?—Yes, I believe so.

369. What sort of works are they?—A detached rubble-stone breakwater, I think.

370. Is that the principal thing?—Yes.

371. It has been the nature of these things very much to exceed their estimate?—In some cases.

372. What is the estimate for Dover?—I am not aware that it has been made for the whole harbour.

373. Is it likely to cost five millions?—I hope not so much, but if it did I should not think it thrown away; if we get a good large harbour at Dover, I should think the money would be well spent on it.

374. Do you know what Portland cost?—Portland is being made cheaper than any other breakwater in the United Kingdom.

375. That is by convict labour?—Partly convict labour; and, independently of that, Portland is being made at the rate of 85 *l.* a lineal foot, which is the cheapest harbour of that kind ever constructed.

376. What will it cost altogether?—Upwards of a million of money.

377. What circumstances are there in the harbour on the Tees which led you to expect it would cost so little as 800,000 *l.*?—The water is not so deep as at Portland.

378. You spoke of the means of supplying the funds for this harbour; it must first come out of the pockets of the Government, must it not, out of the Consolidated Fund?—That is a point on which I have hardly a right to speak; but I believe there is a large surplus of the Mercantile Marine Fund; of late

Capt. *J. Washington*, R. N., F. R. S.

13 July 1857.

years a certain per-centage on the light dues has been taken off. I have never heard the least complaint of the present contribution to the light dues; and if it is continued for a few years longer, a fund might be raised for the purpose.

379. Do you think that the principle of the passing tolls is fairly applicable to the harbours you contemplate?—Yes, but not as they have been applied hitherto.

380. Supposing that the shipping could use the harbour they passed by, you think it is not an unfair principle?—No; I believe they would gladly pay it.

381. In some shape they might be looked to to reimburse the public the interest of the money advanced?—I think so; and probably convict labour might be used with great advantage.

382. *Chairman.*] Has not one of the great causes of the increase of the Holyhead expenditure been the change of plan?—Yes, and the extension has been found of immense benefit.

383. It is an error if it is supposed that the great increase of the estimates for that harbour has been a departure from the original estimate?—Quite a mistake; it is entirely in consequence of the extension of the harbour.

384. The original estimate for the larger work was upwards of 1,200,000*l.*?—Yes.

385. And now the plans, as recently sanctioned, are to the full extent of the original projected harbour?—Full and beyond. The plans at present sanctioned are, I believe, beyond the original intention.

386. The original plan, of which that was a reduction?—Yes.

387. The mode adopted by Mr. Rendel for the making of the Holyhead Harbour by the erection of a railway, and the tumbling in of rubble stone into the water, is a much cheaper plan than anything that has been done before?—Yes, very much cheaper.

388. Have you any means of speaking as to its efficiency?—No further than that the dyke at Cherbourg, which was built in that way, has stood the test of many a heavy gale.

389. And that was built upon a similar foundation?—Yes; an upright wall, begun just from below low-water mark, which is proposed at Holyhead and Portland, and in the present Tyne piers. I believe it is an acknowledged mode of building. The reason that it is not adopted at Dover is the very limited space there; the whole of the works there are an upright wall from the foundation.

390. There is no instance, that you are aware of, where the foundation made in that manner has given way?—Not where the upright wall has been laid below low-water mark. Some of the similar works on the coast of Ireland did give way; when the attempt was made to bring the slope up above high water it gave way, but where the rubble stone has been kept below low-water mark, and from thence an upright wall, there is no instance of its having given way; in fact, the heavy stroke of the sea appears to be about at half tide. That is the result of the experience at Cherbourg.

391. Mr. *Macartney.*] Have you visited Holyhead yourself?—Within two years.

392. It has been admitted by eminent captains on that coast, that by a further extension of that which is now finally fixed upon as the final extension of the wall (which I believe was decided upon within the last four or five months), that that should be further extended by about 150 yards, and from the opposite side, on a rock which is dry at low water, to the extent of about 250 feet, as in that way to enclose the entire bay, so that the north-west wind, which is the only wind of a disadvantageous kind, would be perfectly prevented from any interference with ships lying in the whole bay; so that, in place of what is now within the pier, the whole bay would be a safety harbour?—I have not seen that proposal. It was an original proposal to cover in the whole of Holyhead Bay.

393. Do you think that if that alteration could be made, even at an expense of 200,000*l.*, or 300,000*l.* more, that it would not more than compensate the expense, by making it a harbour of very great safety as to the extent of anchorage?—I would rather you would allow me to consider it until I see the plan on paper.

394. Lord *Naas.*] How is it proposed to finish the works of Holyhead Harbour with regard to mason work?—Mr. Rendel having died, the work has been put into the hands of Mr. Hawkshaw who has been consulted on the subject; but, I believe, it is intended to be a vertical wall on the rubble-stone breakwater.

395. Would

395. Would it be necessary to build a vertical wall of mason work the whole length of the new pier?—I think probably a parapet and wall will be necessary, but I am not an engineer.

396. Have you seen the original estimate for Holyhead Harbour?—Not lately.

397. Take that estimate, which is the original estimate, into your hand (*handing it to the Witness*), now you see there is a sum for the breakwater?—Yes.

398. A sum of 174,935 *l.* for rubble-stone work?—Yes.

399. And there is a sum of 239,849 *l.* for mason work?—Yes.

400. Do you think that if it is necessary to build up the mason work in the way you describe, that it must be done at an additional expense, in proportion to the difference that is calculated there, that is the difference between the cost of the mason work and the rubble-stone work would be proportionate to the cost estimated there?—I have no reason to suppose any difference; as I said before I am not an engineer, and I would rather not hazard an opinion upon an engineering question.

401. There is no reason to believe that that estimate is too large?—Oh no, certainly not; you are aware that this is not the estimate for the present extended plan.

402. No; but it is for similar works?—Yes.

403. The present work I believe is stronger and more expensive than the work before estimated for?—Yes.

404. So that there will be no diminution in the expense, whatever it may exceed it; there will not be a diminution?—No; certainly not.

405. We have now a sum already expended of 937,000 *l.* on that work and there is no mason work even commenced yet. Is not that the case?—That is so, I believe.

406. Therefore it is clear, that the whole cost will exceed the sum already spent by considerably more; double, if the mason work is continued in the way in which it is proposed to be done?—It would appear so from these papers; but we are assuming that the engineer will finish the masonry in the same manner. It is quite possible he may adopt another plan.

407. Do you think he may possibly adopt another plan which will reduce the expense?—I cannot say.

408. The new work is in deeper water, the whole thing is larger; the stone must be carried to a greater distance. Do you think there is any reason to believe that those original estimates can be reduced?—No; I think it is very probable they will be the same.

409. Can you tell me the spot where the stone, which would be requisite for the masonry work at Holyhead would come from?—I am not sure, but I believe from the quarries adjacent.

410. Is it certain that the stone which will be found in the neighbourhood of Holyhead, will be good enough for the masonry work?—I have not heard anything to the contrary.

411. Do you know what is proposed to be done at Holyhead with regard to the inner pier?—The eastern pier is not decided on yet. I know Mr. Hawkshaw has it under his consideration.

412. Then the present state of things is this at Holyhead. We have now an outlay of nearly 937,000 *l.* for rubble work alone?—I believe it is so.

413. The inner pier or the eastern breakwater, as it is called in the original estimate, has not yet been commenced. There has not been a stone laid for it. Is not that the case?—A small part of it has been carried out.

414. And that none of the masonry work, which is shown by the original estimate to be by far the most expensive portion of the work, has been done?—I believe that to be the state of the case; I may be allowed to add, as far as I am concerned, and I believe I am speaking the opinion of every sailor of Liverpool, and everywhere else, that if the amount were double that, it would be extremely well spent; and the shelter which is already afforded is well worth the outlay.

415. I believe, as far as the expense at Holyhead has gone, the result has been perfectly satisfactory?—Yes.

416. And even in its unfinished state it has afforded considerable and valuable refuge to vessels in the last few months?—Yes, certainly.

Capt. *J. Washington*, R. N., F. R. S.

13 July 1857.

417. So that it is your opinion, that no matter what will be the expense at Holyhead, it will be absolutely necessary to complete it?—Quite so.

418. It would be very poor economy to leave it in its present state?—It would be most miserable economy. I would carry it out to its fullest extent. I am sure that no one will ever regret it.

419. Mr. *A. Smith.*] Would not these breakwaters stand well in the manner in which they are exposed without having the mason work erected on them?—Quite possible.

420. Has there been any test of the action of the sea upon them, they having stood now for some years?—They have stood some time.

421. Do you think it would be absolutely necessary for their security that the mason work should be built upon them from the point you mentioned, just below low-water mark?—I am not sure that it is; but, as I said before, that is an engineering question which I am hardly prepared to answer.

422. *Chairman.*] At all events the breakwater would be perfectly available for all the purposes of a harbour of refuge for many years to come, and the further expense might be incurred by degrees?—Certainly; perfectly available, as it is at present.

423. For all the purposes of the harbour, the harbour is perfect at present?—Yes.

424. So far as it has been made?—Yes.

425. And therefore, any further expenditure would be rather a precaution against the future than for its present use?—I think so.

426. And it might become a question hereafter, with further experience, whether the breakwater would, as it had been constructed, be sufficient, or whether the masonry would be necessary in order to complete it?—It might be so.

427. Lord *Naas*] Has any pier of that kind ever been made without masonry?—Plymouth, in some respects.

428. Have not those stones been laid in concrete?—Yes, some of them.

429. And was it not found necessary?—Yes.

430. Sir *F. Smith.*] I believe where any failure has taken place, by using rough material for breakwaters, it has arisen from not using a sufficient quantity of small material with the large?—That is the case at Plymouth.

431. Are you aware that some years ago a Commission was established for the purpose of deciding what should be the means of communication, by railway and by harbour, between Dublin and London?—Yes.

432. And that the line of railway now established was selected in preference to a line of the Great Western?—Yes.

433. Are you aware that Sir James Gordon and Captain Beechey were employed to determine it?—Yes; and they recommended Holyhead, in which every one concurred, or nine-tenths at all events concurred.

434. You talked about space for the construction of a breakwater at Dover, is there not abundant space for making the breakwater either by slope instead of by vertical walls?—I think not; it is a narrow part of the channel.

435. The breakwater now in construction is being made of upright walls?—Yes.

436. With faced cut stones filled in with blocks of concrete?—Yes.

437. And that has been laid by diving bell?—Yes.

438. Must not the progress be very slow?—Yes, and very costly.

439. They are now at work solely on the western pier?—Yes.

440. It is intended to have an eastern and southern pier?—Yes, I hope so.

441. They are doing nothing on the eastern?—No.

442. What would be the effect, when the western is completed, of a vessel taking refuge behind that wall from a westerly wind and a north-easterly wind coming on?—She must escape as best she can. It is very improbable that the wind should get to north-east without veering round to the north-west.

443. Is there no danger of being wrecked on that portion of the breakwater now forming?—No; there would be very little danger of that sort.

444. Is it not desirable that the eastern pier should go on simultaneously?—Yes, most desirable; it ought to be begun immediately.

445. Is it not the fact that one of the reasons why the eastern pier is to be made with cut-stone is, the difficulty of getting materials for the sloping walls?—I believe so; and also that the concrete and the shingle on the spot can be used advantageously.

446. Lord *Naas.*] The expenditure at Holyhead is totally independent of the packet station?—The present harbour would embrace a packet station.

447. The original estimate was 600,000 *l.* in which that was intended?—I believe Holyhead Harbour will prove a cheaper breakwater than Plymouth or Cherbourg by a great deal.

448. Mr. *Liddell.*] Have not the works at Dover exceeded in their execution the original estimate?—I believe so.

449. Is not almost the most expensive part of the work to come?—There is a great deal to come if the original plan is to be carried out. I do not know that they have exceeded; I have not seen the estimate for the whole.

450. Lord *A. V. Tempest.*] Looking to the object of saving the largest amount of property and of life, which portion of Great Britain do you think most entitled to an advance of money for the purpose of a harbour of refuge?—Tees' Bay.

451. In the formation of a harbour at Tees' Bay, do you not think that that harbour should be free from strong currents attendant upon tidal harbours?—Most probably.

452. You have stated that one of the causes of the cheapness of the construction of Portland Harbour has been the employment of convict labour in its construction; do you not think that the same principle might be applied to other harbours, and produce the same result, namely, economy?—Yes, I have long advocated it; and I hope that convicts will be used in any great public harbour which may have to be made.

453. In the formation of a harbour at Hartlepool, would it not be a very desirable harbour for Her Majesty's cruisers; would they not have the facility of provisioning, watering, and coaling, and be a good position in the event of a war?—It would.

454. Lord *Naas.*] You said the lowest estimate proposed for a breakwater at Holyhead was 85 *l.* a foot?—I said that Portland Breakwater is actually constructing at 85 *l.* a lineal foot; the superstructure will cost 35 *l.* in addition; but this is independent of the deep-water circular heads and lighthouses

455. In Rendel's original estimate of 600,000 *l.* for Holyhead, the rubble work was calculated at 35 *l.*?—Mr. Rendel was a sanguine engineer, and he, no doubt, hoped so. What it has cost I do not know. There are greater difficulties at Holyhead than at Portland.

456. Portland Harbour was erected by convict labour?—Yes.

457. At a considerable saving?—Yes.

458. You think that the expense of Holyhead would be greater than Portland?—Much greater, from its greater height and greater exposure.

459. Supposing both works are done by free labour?—Yes; it is more exposed.

460. And is it further to carry the materials?—No; it is about the same distance.

461. Is the depth of water greater?—The depth of water is about the same; but there is a much higher rise of tide at Holyhead.

462. The additional expense is caused by position?—Yes, and a greater depth at high water.

463. *Chairman.*] In using the convict labour, is it not the practice to charge the works with the fair price of the labour, and to credit the convict allowance for the value of that labour?—I believe so.

464. A sum paid into the Exchequer as the value of the convict labour, except the portion credited to the convicts themselves for their time when they become free?—I believe it is.

465. Mr. *Liddell.*] Is the expense of the buildings in which these convicts live included in that expense?—I do not know.

466. Have you ever ascertained whether the material is to be found in abundance on the spot for the construction of the works on Tees' Bay?—The rock is magnesian limestone, and no doubt could be used for such works; the heads and facing might require granite or whinstone.

Mercurii, 15° *die July*, 1857.

MEMBERS PRESENT

Mr. Wilson.	Mr. Augustus Smith.
Mr. Lowe.	Mr. J. H. Gurney.
Mr. Baring.	Mr. Traill.
Lord Naas.	Lord John Hay.
Lord Adolphus Vane Tempest.	Mr. Macartney.
Mr. Kendall.	Mr. Ferguson.
Mr. Liddell.	Mr. Dodson.
Sir Frederick Smith.	Mr. Clay.
Mr. Philipps.	Mr. Ewart.
Mr. Hassard.	

JAMES WILSON, Esq., IN THE CHAIR.

Capt. *James Vetch*, R. E., F. R. S., called in; and Examined.

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

467. *Chairman.*] WHAT position do you hold at the Admiralty?—Conservator of the tidal waters of the United Kingdom, and in charge of the Harbour Department.

468. How many years have you been in that department?—Ten years.

469. You are by profession a Military Engineer?—Yes.

470. Have you had occasion frequently, during that period, to visit different parts of the coast, with a view to the condition of their harbours?—I have been at various times obliged to visit most parts of the coast, where complaints of injury have been made, or propositions to establish new harbours or works.

471. And has your experience at the Admiralty made you well acquainted with the coasts of the United Kingdom?—I have been at various times over the greater part of the coast of the United Kingdom, both of England, Ireland and Scotland; not universally, but over the greater part.

472. Are you acquainted with the islands in the north of Scotland, the Hebrides and the Shetland Islands?—I happened to be on the trigonometrical survey over those islands in two successive years, and had an opportunity of seeing the natural harbours and features of these islands.

473. Is it the case that those islands are sufficiently well furnished with natural harbours, so as not to require any artificial harbour being made to secure ships passing in that direction?—I think they are so; the natural harbours in those islands are numerous and good, and almost sufficient for the purposes of shelter.

474. I observe on this map, which shows the wrecks at sea for the last five years, there appears to be a considerable number of losses around the Shetland Islands, and also among the Orkneys?—There appear to be a number of wrecks at North Ronaldshaw; I think that is a dangerous part of the coast, but I do not see how it can be alleviated or improved.

475. Are those stormy and dangerous seas?—Yes; the tidal currents of the Orkneys are extremely rapid, and therefore great danger arises from the currents and storms occurring at the same time.

476. The risks which are peculiar to those seas are not of a nature to be avoided by the establishment of harbours of refuge?—I do not think they can be avoided.

477. What is the most northerly part of the coast of Scotland where you think that a harbour of refuge might be established with advantage to the public?—Proceeding south from Duncansby Bay Head, the first suitable site that occurs is Wick.

478. Do you think there is nothing north of Wick that would be suitable for a harbour

a harbour of refuge?—Sinclair Bay is a large open bay, but it would be expensive to enclose any harbour at that site, and therefore Wick is the only site.

479. Does the vicinity of Wick offer peculiar facilities for the creation of a harbour of refuge?—It is sheltered on three sides, it has good deep water, has a fine bottom, and only wants shelter from south-easterly gales.

480. When you speak of shelter, do you mean sea shelter?—Yes.

481. Does it not also require some shelter from the north-easterly gales?—It is not so exposed to the north-easterly gales, but it is open directly to the south-east.

482. You mentioned Sinclair Bay, where is Sinclair Bay?—It lies immediately to the north of Wick.

483. Any object that could be obtained by a harbour of refuge in Sinclair Bay would be equally attained by a harbour of refuge at Wick?—Yes, and at less expense.

484. Is there much traffic in those seas, the advantage of which would be obtained by a harbour at Wick?—One great inducement for a harbour at Wick is the great number of fishing boats, about 1,000 boats, and about 5,000 men to navigate them; which are congregated there in the fishing season.

485. Are there a number of merchantmen coming from the Baltic that go round the north of Scotland, that would also avail themselves of that harbour in the event of a storm?—I do not know the amount of foreign shipping, but there are traders connected with the fisheries that go there; and it is obvious that Wick, being situated near a great turning point of the coast for vessels bound through the Pentland Firth, a good harbour there would be useful to vessels that are not able to pursue their course from contrary winds.

486. I observe on this chart there appear to be a great number of losses on the coast of Scotland, immediately to the southward of Wick, from Peterhead round that coast; would a harbour of refuge at Wick be available for vessels in distress in those seas?—The coast of Scotland stretching from Inverness or Nairn to Kinnaird's Head is shoal; and is a difficult and a dangerous coast, and any vessel bound from Wick, southward, would require to take a good offing to escape being embayed in the Moray Firth.

487. What extent of coast is there at that part which is unprovided with any harbours to which a vessel can run in the event of a storm?—Wick is about 12 miles from Duncansby Head. The next place of refuge is the Firth of Cromarty, which may be about 30 miles to the south, and that is a safe harbour; but being in the very bight of the bay, few vessels would run so far in if they could avoid it.

488. Taking the North Sea vessels navigating this part of the German Ocean, is there any large harbour of refuge northward of the Firth of Forth which would be applicable to vessels in those seas?—The Firth of Cromarty is a remarkably fine harbour, but it is very little resorted to.

489. Could a vessel with a south-easterly gale get into the Firth of Cromarty?—It would depend on the position where it was taken or caught in the gale.

490. Suppose it was a vessel out at sea?—If it was off Kinnaird's Head in a south-easterly gale, it might not be able to fetch the Firth of Cromarty.

491. I see a large number of losses have taken place immediately off Peterhead and Fraserborough, vessels in that portion of the sea, could they, in a south-easterly gale, run for Cromarty Bay?—These headlands constitute turning points in the navigation, and therefore vessels which are not able to weather it, their fate is very uncertain.

492. Looking at that part of the coast of Scotland, is there any point at which you would recommend a harbour of refuge being made in preference to Wick?—I see no place whatever that could have such preference.

493. Does Wick present, not only the best geographical position for a harbour of refuge, but has it also the greatest facilities in its immediate locality, and shores for the erection of a harbour of refuge?—That is my opinion.

494. Are you aware that a Bill has been brought before Parliament this year for the purpose of enlarging the present harbour at Wick?—I am.

495. Do you know the present harbour as it now stands?—I have a plan of it before me now, I am well acquainted with it.

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

496. Is it not a very imperfect harbour, even for the small fishing-boats that frequent it?—The two existing harbours contain about six acres each, and are dry at time of low water.

497. And is it not difficult to take it in the event of a storm?—If the boats are crowding in, circumstances have shown that it creates a great deal of danger when a storm comes on suddenly by the boats crowding to take the harbour, and lives are very frequently lost.

498. Has there not been a great loss of life and property in the immediate vicinity of Wick of recent years?—Do you allude to fishing-boats?

499. Yes?—There are various epochs at which they have occurred, but I cannot mention the dates.

500. Is it your opinion that the proposed extension of the harbour, as provided for by a Bill that is before Parliament this year, will answer the public purposes of a harbour of refuge at that spot?—The design attached to the Bill of this year is exterior to the two dry harbours now existing, and I think that so far from being a benefit to the public service, it would be a great injury; it would occupy a great portion of the roadstead, and prevent it being used by vessels and boats, when an exterior shelter is established.

501. Even though the plan proposed by the private Bill might be sufficient for the fishing-boats of the harbour, it would not be sufficient for the public purposes of the general navigation of those seas, but it would be rather disadvantageous than otherwise; is that so?—I think it would prevent a better measure being carried out, and would make the northern shore more dangerous than it is now, by throwing the pressure of the sea over against that shore.

502. Do I understand the proposed plan correctly, that it is intended only to throw out a breakwater pier from the southward, stretching towards the northern shore, without providing anything on the north shore?—The scheme of this year is to form a work of four cants, proceeding from the south shore nearly half-way across the bay. It is not intended to be a quay which can be traversed, and supplied with a parapet wall, and to which access may be had alongside at all times, but over which the sea would break in heavy stormy weather.

503. You think the sea will break over it if it is made as proposed by the new plan?—Yes.

504. You do not consider that boats lying inside that pier would be perfectly secure in the event of a strong south-easterly gale?—I think if they were lying near this pier, and the sea was coming over it, which must be the case in heavy gales, that there would be danger and loss; the pier itself, so exposed, would be in some danger of being upset from not having parapets.

505. There being no breakwater on the northern shore, if the plan were carried out would it not make the harbour more dangerous in a north-easterly swell, the swell coming round the point and rolling into the harbour?—I think it is obvious, from all the natural circumstances, that a great sea wave coming into the bay of Wick, being compressed suddenly into one-half its breadth, would be increased in intensity, and be thrown on the northern shore to a very dangerous amount; it would render, therefore, the little fishing places along the northern shore dangerous and almost useless.

506. Do you think that according to the plan proposed, the new harbour would be very apt to silt up by the swell coming round that harbour?—In the proposed new harbour the swell would not come round the harbour; but the effect would be that the mouth being exposed to the sand and gravel that now proceed from the river downward, and which found its way into the outer harbour, near to which is the mouth of the proposed harbour, the material that formerly went into the old outer harbour might find its way into the proposed new harbour.

507. Have you reported on that harbour for the Admiralty?—I have.

508. Have you reported on the proposed improvement?—I have.

509. And, upon the whole, you think that the proposed improvement would neither be sufficient for the local purposes of a fishing harbour nor for the more general purposes of a harbour of refuge for vessels traversing those seas?—I think it would be detrimental in several ways, but might be beneficial to the company by which it has been promoted.

510. Have you proposed, or has there been proposed at the Admiralty, an alternative scheme?—Seeing that what was proposed would not be likely to meet the

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

the public wants, I thought it my duty to show what would, and I have made a sketch of the same, upon the least extensive scheme, which I conceived would meet the requirements of the case.

511. Your plan is to run out a breakwater pier from the south to the north and from the north shore, leaving a sufficient space for vessels to enter between the two breakwater piers?—I propose, as suggested, that a pier should be run out from the south shore, 1,400 feet in length, slightly curved towards the centre of the bay, and that another pier should be run out from an opposite point on the north shore, 1,150 feet in length, leaving an opening between them of 500 feet.

512. Would that opening be sufficient for vessels to enter in any state of the tide or in any state of the weather?—At all times of the tide; if the wind was blowing directly off shore they would not require shelter, but could beat in.

513. In any state of the wind in which they require shelter in that harbour, the opening you propose, you think, would be sufficient for the purpose of enabling any vessel to enter?—I think it would be amply sufficient to admit vessels to enter.

514. Will you be good enough to put in the report you made on these two schemes, and also a plan showing the proposal of the Fisheries Society, and the plan of the Admiralty as an alternative plan which you have described?—This plan shows these two designs; the one is by the Fishery Society, and the other is by the Admiralty.

515. Perhaps you will put in a copy of that on a smaller scale?—Yes.

516. What is your estimate of the cost of the enlarged harbour?—I did not trust myself with making an estimate, not having sufficient practice in the construction of works; but submitted the plan and section to Mr. Coode, the Admiralty Engineer at Portland, for his estimate, and I find that for the south pier he has estimated a sum of 100,815 *l*, with an upright wall proceeding from a depth of 12 feet below low-water mark, and with an upright wall proceeding from low-water mark, only 91,960 *l*.

517. That is 191,000 *l*.?—No; if the upright wall proceeds from 12 feet below low-water mark, 100,815 *l*. is the estimate; but if the upright wall proceeds from the level of low-water mark, the cost would only be 91,960 *l*.

518. Will there only be about 9,000 *l*. difference between the expense of building the wall from low-water mark, or from 12 feet under low-water mark?—Mr. Coode so states in his report, and he has taken a great deal of pains with it; he has put in every contingency, and has calculated it to be done by free labour.

519. He has not, in that estimate, made any allowance for a reduced price of labour by employing convicts as they do at Portland?—He has not done so.

520. Do you know whether his calculation is based on following the plan that Mr. Rendel has followed at Holyhead, of throwing rubble-stone in order to make a foundation?—His plan commences with a rubble-stone foundation, and to build on that, either from the depth of 12 feet below low-water mark, or from the point of low-water mark, but he prefers distinctly proceeding from 12 feet below.

521. You have spoken of the south pier, what of the north pier?—The north pier will only be 1,150 feet in length; of that he has estimated the cost, with the upright wall, from 12 feet below low-water mark, at 85,327 *l*.; and proceeding with an upright wall from low-water mark, only 83,215 *l*.

522. What would be the cost of the two together?—£. 186,142; that is, from 12 feet below low-water mark.

523. And what would be the cost, taking the upright wall from low-water mark?—£. 175,175.

524. Is that 175,000 *l*. in the one case and 186,000 *l*. in the other?—Yes.

525. A harbour constructed upon the plan which you have just described, would that be a sufficient harbour to receive men-of-war, or whalers and merchantmen going round the south of Scotland, or vessels of any size driven into those seas?—The depth of water, which extends to 42 feet at time of low water, will be able to take Her Majesty's ships of war generally, and will admit any merchantmen.

526. What area would there be of shelter?—Of two fathoms and upwards, I find 62 acres; and of three fathoms and upwards, 42 acres.

527. Would that be a sufficient area to accommodate any amount of shipping

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

which is likely to navigate those seas?—I think any reasonable amount of shipping likely to repair to it.

528. So far as regards the local fisheries, would the harbour you have described now be equally good for those local purposes as the one they are now proposing to make?—It would allow the fishing-boats to proceed to sea at all times of the tide, and would give still water along the shore on both sides of the haven, and permit the requisite accommodation for boats landing and discharging on both sides of the bay.

529. For local purposes as well as for general purposes you think that the plan which you propose would be superior to the plan which is adopted by the private Bill?—That is my opinion.

530. Is there any other part of the coast of Scotland which strikes you as requiring a harbour of refuge?—Will you give me leave to hand in some notes on the subject of Wick?

531. Will you attach that to the report you have made?—Yes. The next and most important point on the east coast, proceeding southward, is the shelter required in the vicinity of Hartlepool and the Tees' mouth.

532. There is nothing more in Scotland that you think deserves much attention?—I am happy to say that the harbour of Aberdeen, which was formerly very difficult to take, has been very much improved latterly; the bar has been removed, and deep water procured, and therefore it is now in a very favourable state.

533. That is a trading harbour?—A merchant harbour.

534. But it is a harbour that can be used as a harbour of refuge for vessels passing near it?—It has a considerable depth of water, and may be used at the time of high water by large vessels; the bar has been removed by dredging, and there is now 21 feet at the time of high water spring tides.

535. And the peculiar dangers which used to attach to that harbour have been removed?—Yes.

536. Is there nothing that occurs to you to require attention till you come to the neighbourhood of Hartlepool?—I should have submitted that some little accommodation or shelter should be given to the fisheries in the Firth of Forth; Elie is an important place for such facilities, and so is Dunbar, on the southern coast.

537. Are you aware that the Town Council of Dunbar have made an arrangement by which they are going to extend that harbour very much, at an outlay of 30,000 *l.*?—I am very glad to hear it.

538. Do you think that that will answer the objects you had in view in the remarks you made just now?—It is in a very crowded state at present, and an expenditure of 30,000 *l.* there would do a great deal of good.

539. Supposing that to be provided for, is there anything that you wish to call the attention of the Committee to before you come to Hartlepool?—I think if 30,000 *l.* could be applied to Elie, it would be beneficial there. The site is uncommonly favourable, and situated at the very mouth of the firth.

540. Are you not aware that the fisheries of the Forth are chiefly carried on at Dunbar?—I think Dunbar is considered the principal fishing station.

541. And is it useful to the coast of Fife, as well as the other coast?—No doubt; the vessels resort from the Fifeshire coast to Dunbar.

542. Are you aware that, in consequence of the railway station being close to the harbour at Dunbar, opening up a market for the fish both to the west of Scotland and the south, that it has become almost the only harbour resorted to by fishing-boats in that locality?—I have understood that the market for the herrings has obtained a great impulse from the circumstance you have mentioned.

543. And therefore, with that view, it would be more important to complete and enlarge the Dunbar harbour, than to extend a harbour to a part of the coast of Fife which has no such facilities?—Taking that circumstance into consideration, I think it is decidedly entitled to the preference.

544. You have stated that the next point you wish to call the attention of the Committee to is Hartlepool?—Hartlepool or the vicinity.

545. Some point in Tees' Bay?—I have written out a few notes on the subject; perhaps you will allow me to read them.

546. Before you do that, would you inform the Committee what you consider to be the limits of Tees' Bay; between what two points do you consider Tees' Bay

Bay to extend?—I consider that Huntcliff on the south, and Newbiggen on the north, would be, properly speaking, the extent of the bay, of which Tees' mouth is the bight.

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

547. Will you now proceed to read the observations which you proposed to do on that bay?—This is the paper.

[*The following Paper was handed in by the Witness*:]

Teesmouth is beset with sands and sandbanks, and is situated in the very bight of the bay. The estuary of the Tees comprises 8,000 acres at time of high water, and only 1,103 acres at time of low water; therefore, receiving and returning the difference twice a day, which, under common circumstances, ought to cut out a deep channel to sea, but, in this instance, is prevented by the shifting nature of the sand and banks. The idea has, therefore, been to fix the same by running a breakwater from Seaton Snook, on the north side, to the first, or white buoy, about one mile in length, which would condense the flux and reflux of the tide into a narrow and fixed channel, and thereby serve to augment the depth. At present, even in its open and wandering state, the depth on the bar is eight feet, and therefore deeper than any other river entering the great bight of the shore in question. The above work is estimated to cost 109,000 *l.* in round numbers. I do not consider the breakwater need extend so far, or cost so much in construction, and that it ought to be carried into execution to some extent by the aid of Government, with a view to fix the entrance, and remove the danger from the shifting of the banks at the entrance of the Tees' Estuary.

What has occurred to me at Hartlepool is, that the proposed shelter might be best effected by means of a detached breakwater, like the Plymouth Breakwater, or that of Cherbourg, on the coast of France. I have marked it in pencil here on the Plan, merely to point out the principle I suggest. (*handing the Plan to the Committee*).

548. A detached breakwater in the entrance to the bay?—Opposite the bay.

549. Leaving an entrance at both ends?—Leaving an entrance at both ends.

550. From the northward and from the southward?—From south-east and north-west, which should allow any sand to be carried through. I should be afraid that perpendicular walls running from the shore might cause the sand coming in to accumulate; but by the detached breakwater the tidal current would not be interrupted, and would carry the silt through.

551. Do you think that a detached breakwater, similar to that at Plymouth, would be better than a breakwater carried out from the shore?—I think it might be so.

552. If the silt were brought in from the north, it would be carried out by the south, and *vice versâ*?—Yes.

553. That would contemplate making a harbour of refuge of the whole bay?—It would occupy nearly the whole bay, and give much greater access than a close harbour.

554. Do you think that a breakwater of that kind in that particular spot would secure still water inside?—To the same extent that the Plymouth Breakwater does, which appears to be very complete.

555. This bay is more open than the Plymouth Bay?—Plymouth breakwater is exposed to the Atlantic swell (in south-westerly gales), which passes round the west end of the breakwater, and brings in a heavy sea within the breakwater; in the North Sea the swell is of less amount, and I conceive a breakwater in Hartlepool Bay would be less assaulted than that at Plymouth.

556. And there is a much wider space?—The land overlaps in both directions to a very considerable extent.

557. With the breakwater constructed, as is shown on this map, would there be much shelter with a strong south-easterly wind?—In south-easterly winds the land itself would form a complete shelter, extending from Redcar to the break-water, which would shut off any sea coming along the coast in that direction.

558. Have you considered this plan sufficiently well to enable you to pronounce an opinion that the sea inside this breakwater would be sufficiently still for a harbour of refuge in any state of the wind?—I merely offer this as a suggestion; I have not studied the subject sufficiently: what slight investigation I was able to make, was with the view of preserving a harbour there secure against an accumulation of sand and silt.

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

559. To have an opening at both ends?—To have an opening at both ends, and the whole length of the breakwater facing the most dangerous wind.

560. As far as you are able to form an opinion, that would be the best mode of providing shelter in that bay for the vessels entering it?—It occurs to me, at present, as the most eligible; but I have not sufficiently studied the subject to enable me to speak to that with entire confidence.

561. Are you quite clear in your opinion that that is the best locality for a harbour of refuge?—The only other locality which could be used is that a little to the north of Hartlepool Head; but as the south is more in the bight of the bay, it would save more vessels.

562. Do you know the locality of Redcar?—I have been there, and had to report on the project of a harbour there some years ago.

563. But upon the whole you are disposed to recommend some part of Tees' Bay as a harbour of refuge?—I think it is the site that would confer the greatest benefit on the passing trade.

564. And that would be available for all the vessels proceeding to the north or to the south, belonging to the large ports of Sunderland and Newcastle, and the neighbouring ports in the coal trade, and others?—When vessels get embayed it would have the effect of affording them shelter.

565. Now, proceeding to the south, what is the next point that you wish to call the attention of the Committee to, as being peculiarly exposed to danger, and requiring the construction of some harbour of refuge?—I think the Tees' mouth deserves some consideration, though it could not be converted into a general harbour of refuge; it has a dangerous bar, and there is a great deal of shipping at Stockton, Middlesbrough, and other manufacturing towns; it is beset by a great sand-bank which sets across, but nevertheless leaves a bar with eight feet at the time of low water, which is deeper than any harbour on that part of the coast.

566. That would be a work peculiarly applicable to the mouth of the Tees wholly, and to the port of Stockton?—A simple breakwater carried across that sand-bank, so as to fix it, would have the effect of condensing the tidal currents out and in, which is now spread over a wide surface, and would deepen the channel materially; there is no inlet or estuary in that quarter having the tidal capacity of the Tees' Estuary.

567. An improvement of that kind would be valuable only for vessels trading into the Tees?—I should not like to predicate what result would actually be produced by throwing a breakwater across from the north shore of the Tees' mouth; the estuary consists of 8,000 acres, over which the tide flows and reflows every six hours; therefore, the quantity of water that goes out and comes in there, if confined by narrowing the entrance, ought to produce good effects, and might form a good harbour for general purposes at the Tees' mouth.

568. Do you suggest that the mouth of the Tees might be made a harbour of refuge instead of the harbour which you have described in Tees' Bay?—I could not say so much as that; but I think the experiment would show how far it might effect the object; and that, under all the circumstances, some improvement should be made there.

569. In speaking of a harbour of refuge as a public work, available for vessels traversing those parts of the ocean, if there were a harbour of refuge such as you have described in Tees' Bay, the improvement at the mouth of the Tees would then become applicable only for local purposes?—It would be in the very bight or bag of the bay; and if the entrance were made accessible at all times of the tide, vessels would find shelter.

570. If there is a harbour of refuge out in the bay itself, no vessel would go into the Tees that otherwise intended to go on?—If such a harbour be provided at Hartlepool as is contemplated, they would not go into the Tees' Estuary.

571. As a harbour of refuge the two would not be required?—I think not; but still, the local trade at Tees requires that something should be done

572. Will you separate the local from the public interests? If for public purposes a harbour of refuge is made in the Tees, by any works you suggest at the entrance of the Tees, it could only be for local purposes?—It would depend

on

on the effect produced by those regulating works; if it is a wide entrance and deep water, any vessel might take advantage of it, and to any amount.

573. There would be two harbours of refuge in the same locality between which vessels might make a choice?—Yes.

574. Do you mean that the harbour which you have proposed in Tees' Bay would be insufficient for the purpose, and would require to be supplemented by these improvements at the entrance to the Tees?—I do not think we can venture to conclude that the works proposed for the Tees would effect the object completely, and therefore nothing but experience could bring conviction on that point.

575. The works you suggested for the Tees would not answer the whole purpose of a harbour of refuge?—I should not be able to predicate such, but I am not without a feeling that it might be so.

576. The other works proposed, you think, would answer all the purposes?—I think so, completely.

577. If the larger works in Tees' Bay were made, the improvement at the entrance to the Tees which you have suggested, would, in that case, be superfluous as a harbour of refuge, and useful only for the local purposes of the navigation of the Tees?—Precisely.

578. Now, proceeding further south, what is the next point to which you wish to call the attention of the Committee?—I really am not aware of any pressing necessity of any harbour of refuge from Flamborough Head down along the east coast; I do not see the necessity very great anywhere, nor, if it were so, that the means exist of providing it.

579. You do not see any other part of the east coast of England where you think any great necessity exists for a harbour of refuge, nor where any great facility is afforded for the construction of one?—That is my view; I am speaking now as far as Dover.

580. You have a great natural harbour of refuge in the portion of the Wash that is protected by land?—We have the very fine natural harbour of the Humber, and then the Wash, Yarmouth Roads, and Harwich.

581. The Thames?—Yes.

582. Then you come to the south coast; is there any part of the south coast to which you wish to call the attention of the Committee, as requiring anything in the nature of a harbour of refuge?—We have the benefit of the Solent and Spithead, &c.

583. Will you state the next point, travelling round the coast, to which you think the attention of the Committee ought to be directed?—Some works at Penzance would be useful; some works of a small extent.

584. At the Land's End?—Yes, the Land's End.

585. What point near the Land's End would you suggest as being suitable?—I do not think Penzance the quarter most deserving your attention at this time. The site that has occurred to me for many years is the Bay of St. Ives, on the north side of the promontory, and which is much exposed in northerly gales.

586. Would that prove a harbour of safety for a large number of ships which appear to be lost on that part of the coast?—By means of throwing out a pier about 2,000 feet long, it would be completely sheltered from every wind that could blow.

587. You know the harbour of St. Ives at present?—I have inspected and made a report for the Admiralty on St. Ives, about 10 years ago, and which I have now before me.

588. Have you any calculation as to the cost of the construction of a harbour at St. Ives?—I perceive the estimate here amounts to 174,400 *l.*, but I may say, now, that even if carried out to half that extent, it would be the means of preventing many shipwrecks.

589. You think that works to the extent of one half of what you have contemplated would still be very valuable, and would have the effect of preventing a great number of these shipwrecks?—I think so.

590. When Captain Washington was before the Committee, on Monday last, he stated to the Committee the computed costs of the various works to which you have referred; may we take his calculations as being derived from the same source as your own, and adapt his answers to your views?—I have not yet compared them, so I cannot say.

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

591. Have you a paper which contains the costs of these various works?—Yes, of St. Ives.

592. Then, proceeding up the coast from St. Ives, is there any other point that you think particularly requires the attention of the Committee to be drawn to?—The north coast of Cornwall is very much exposed unquestionably, but really I am not aware of any place I could possibly recommend for a harbour of refuge, or which would have the effect of sheltering many vessels.

593. You think that St. Ives would answer all the purposes of protecting that coast up to the Bristol Channel?—Being situated at a very important turning point, it appears to me to be the best position for sheltering vessels; if they find, on going up the Channel, that they have a head-wind, they immediately find a shelter; vessels rounding the point of Cape Cornwall and bound to Bristol, if they meet a head-wind, might at once find a shelter at St. Ives, when they might not be able to make a port higher up.

594. Then you think, as a protection to the British Channel, that St. Ives is the best point?—It is the only point on the north Cornish coast that I am aware of that would answer the purpose. There has been a very large scheme proposed near Towan Head, to include a great many acres of water, which would almost contain one of Her Majesty's fleets, but I think it would be totally out of place to think of erecting such a harbour in that place, where it possibly would never be used to any extent commensurate with the cost.

595. That you would not possibly recommend?—No.

596. Then, proceeding to the coast of Wales, is there any point there on which you have to make any observation?—There is nothing which occurs to me; Tenby might be improved and made useful; Milford Haven is a good natural shelter.

597. We are speaking of harbours of refuge only, and not with regard to works more applicable to packet stations or commercial purposes?—I am not aware of any other place on the west coast of England very suitable for the purpose.

598. There is nothing between St. Ives and Holyhead where you think any thing is requisite to be done with that view?—Not any.

599. From Holyhead northward, is there any point of the coast where you think it would be desirable to erect a harbour of refuge?—I am afraid the natural circumstances do not permit it.

600. With regard to the Isle of Man, what is your opinion as to the necessity of providing any thing in the nature of a harbour of refuge?—At present the Isle of Man authorities have got the means, and they propose to expend a sum of money on plans which have been approved of by the Admiralty.

601. Do not those plans refer to trading harbours?—Yes; I do not think there is any harbour in the Isle of Man which would be available for refuge except Douglas, which is the best port in the island, and might shelter about 20 merchantmen, and a number of small vessels, and a fleet of herring boats.

602. As to a harbour of refuge, there is no part of the Isle of Man which you think could be converted into a harbour of refuge, as distinguished from an ordinary trading harbour?—There is the little harbour of Port Erin, which has fine deep water and clear ground, and which is very useful to the great fisheries going on there; and I think if some small sum were expended on that, it would be the means of increasing the amount of the fisheries, and save some accidents to the passing trade.

603. But would not that be only with a view to the local interests of the place?—The fishing boats frequenting that side of the Isle of Man come from all parts, from St. Ives, from Scotland and Ireland, in considerable numbers.

604. That is with a view to the local trade of the Isle of Man?—Yes.

605. And a work of that kind would fairly come within the scheme adopted by the Government with reference to the improvement of the harbours already decided on?—I may say with reference to the Isle of Man harbours, that the sum proposed to be expended on the whole was unable to cover that of Port Erin; and the people there were so spirited, that the fishermen subscribed no less a sum than 819 *l.* towards it themselves; it is a nice little harbour in itself, and might be useful in the trade with Ireland, and to passing vessels, if a sum of 10,000 *l.* were expended upon it.

606. We are not speaking of trading harbours now; speaking of it as a harbour

harbour of refuge for ships sailing in those seas—a public harbour of refuge,—there is no part of the Isle of Man to which you could point as being desirable for that purpose?—No, except Douglas, to the extent mentioned

607. It has been suggested by a witness, that if a breakwater pier were thrown out near the harbour of Douglas, to the westward, independent of the harbour, that that might be of great use to vessels passing by, affording them an opportunity of running in for shelter in the event of a strong south-west wind?—I designed a harbour of that sort for the Admiralty last summer, which has been approved of, and which would go to the full extent that circumstances would permit.

608. So far as that pier was concerned, it would be exclusively for purposes of refuge?—It would be a harbour to allow a constant communication by steam boats with Liverpool at all times of the tide, which is not the case at present; and a steamer is very often unable to land its mails from want of a low-water shelter.

609. A pier of that sort would be available as shelter for any vessels passing the Isle of Man?—It would.

610. And that would be fairly distinguished from the harbour of Douglas as a trading harbour for local purposes?—I think so.

611. On the west coast of Scotland is there anything you have to remark upon, or is there so large a number of natural harbours that you think nothing is required to be done?—I am not aware of anything. The bight of Wigton Bay might be made available, but that may be postponed.

612. Proceeding to Ireland, on the west coast of Ireland, is there not also a large number of natural bays; are there not enough natural harbours to supply any want in that locality?—I have not sufficient knowledge of that part of the coast to enable me to give an opinion.

613. Is there anything on the north coast that you think it is necessary to remark upon?—Some years ago my attention was called to it, and I was directed to make an inquiry into the navigation of the mouth of the River Bann, which is a very good navigation a little way above the mouth, but it has got a bar which may be removed by means of two piers run out across the foreshore, and an entrance obtained at all times of the tide, and so become a useful harbour.

614. That would only be for local purposes?—Yes.

615. In that view of the case, is there any other point on that part of the coast that you wish to remark on?—I am not aware.

616. Lord *Naas*.] The Skerries at Portrush?—There is a line of rocks near Portrush, which extends parallel to the shore, and almost make a natural harbour; it would require little addition to render it a place of refuge.

617. *Chairman*.] Lough Foyle is a natural harbour, is it not?—Yes.

618. Now, coming round to the east coast of Ireland, what are the points there that you consider require the attention of the Committee?—The only place which occurs to me there is the mouth of Carlingford Lough; there is good deep water inside, and it is only necessary to dredge an opening through the bar, which might be done at little cost.

619. By that little cost, you think, at Carlingford it could be made a good harbour of refuge?—I have heard reports lately, that they have found out a deeper channel than they had expected; and I am of opinion that a small amount of dredging might be turned to good account there.

620. If that bar were removed would it not be apt to accumulate again?—From the information I have had, it appears that it is hard, and has been so long accumulated that it is almost a fixture; and if it is broken up, I do not think it would be likely to silt up again.

621. Is Carlingford Bay the only part of that coast you would suggest for those improvements?—I do not know of any other on the east coast of Ireland.

622. Dublin Bay is of itself a very fine harbour of refuge by nature?—Kingstown is the most successful work for the shelter of shipping that I know.

623. Is there anything on the south-east coast at Wexford; what are the facilities which Wexford affords?—Wexford is, unfortunately, one of those harbours which is beset with sands at the mouth, and the channels are continually shifting; sometimes the best channel is looking to the north-east, then

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

there is a channel due east; then the best channel occurs at the south-east, which is called the Hantoon Channel.

624. Is it a shifting bank?—Yes; and a good deal like those banks which beset the Mersey in character, but excessively worse.

625. In your opinion, would there be the means of removing that bank so as to make a constant opening?—I am afraid it would be a thing utterly impossible; the banks are so shifting that I do not think they could be maintained in their position by any human means.

626. Do you think that if a sum of money was laid out to make an entrance to Wexford, that the shifting sand would fill it up again?—Yes.

627. And are you afraid that the money would be wasted if applied to that purpose?—It would be a precisely similar case if they were, at the mouth of the Mersey, to endeavour to dredge a deep channel; they are constantly changing; I have no doubt that at Wexford, if a channel were dredged to-day of sufficient depth to allow vessels to come in, in another two or three years it would be silted up; but I may remark that there is a deep channel inside the bar, which passing Rosslare Point, turns to the south-west, what is called the Coal Channel with 20 feet at low water, and above the Gull Bar, there is another deep channel, which runs from Wexford for 10 miles upwards, and if these two channels, which are now separated by shoal about one mile in length, were connected by a cut between them, so as to allow deep water to run through freely, that might have such an effect on the bar, as to cause and fix a new channel across these sands.

628. By making an opening to the south and the north, the current either way would keep the passage clear?—By cutting a deep channel across the Gull Bar, I think it might have that effect.

629. Somewhat in the same way as you propose at Hartlepool, with the breakwater having an opening at both ends uninterrupted, the channel would be kept open by the force of the tide and the natural currents?—I am alluding to the channel inside the mouth of the harbour.

630. Connected with the outside?—Immediately inside the mouth there is the Coal Channel, which is deep, and runs up for two miles, and then there is the Gull Bar, a shoal which runs across, and then we come to another deep channel, which runs for many miles past Wexford inland; and the mere process of connecting these deep channels, and allowing a deep volume of the tide to run from the mouth up the river, would give a momentum that might be useful in maintaining a channel across the bar.

631. Is it your opinion if that work were done that the harbour of Wexford would then be permanently open to vessels as a harbour of refuge?—I see no other way of expecting any permanent opening, except by such means.

632. Do you think that would make a permanent opening?—It would be in itself a great improvement to the navigation, because there is no other deep channel but that; if the Gull Bar were removed, you would have deep water from the very mouth for many miles above Wexford; but still you have the shifting sand at the entrance to get through; but if this were carried out it would become a powerful scourer; and prove a much more effectual way of clearing the bar than any dredging apparatus could effect.

633. If that were done, do you think Wexford would become permanently a harbour which could be taken by vessels running up the Irish Channel, or running down, in the case of stress of weather, as a harbour of refuge?—I can hardly say as a harbour of refuge, because it is one of the most difficult I know.

634. The internal improvement you propose would rather be for the local purposes of Wexford than for the public purpose of a harbour of refuge?—Quite so.

635. Then, coming to Waterford; what observation have you to make?—It has been very long known and recommended, that part of the ground at the bar should be removed, and a deeper passage given for vessels; and I think, from the description I formerly had of it, that it is a hard material, and if once removed, it is not likely to fill up again.

636. A hard sand-bank at the mouth of the river; is it very shallow at low water?—There is 13 feet at time of low water.

637. You have reason to believe that the bank is of a nature that if once removed,

removed, would not be likely to accumulate in a reasonable time?—I think it very probable, and it would be well worth the experiment.

638. Could it be done at a comparatively small cost?—Yes, under 20,000 *l.*

639. If that were removed, and the opening to that river were clear for vessels going up and down channel, would it be of great importance to the navigation of those seas?—It would be very important to the trade of Waterford; but I do not know that it would be very important to the passing trade.

640. Could it be taken by vessels coming up into the Irish Channel in the event of a storm?—No doubt it might serve as a place of refuge for a vessel caught immediately opposite.

641. Is there any other harbour near to it, which a vessel either coming down or going up Channel would be likely to take in preference, overtaken by storm?—I speak with some hesitation; I think really between Cork and the Saltee Islands, on occasions, Waterford might be advantageously taken by vessels so caught.

642. You do not attach much importance to Waterford as a harbour of refuge?—Not generally, but it might be useful.

643. Is there any other point between Waterford and Cork, that you would suggest as being important as a harbour of refuge?—I am not aware of any place more suitable.

644. The Cove of Cork is one of the finest natural harbours we have?—It is so.

645. Then from that to the westward, is there any point to which you have to call the attention of the Committee?—I have not been on that coast, except at Kinsale and Bantry Bay, and therefore I cannot speak to it.

646. From the west there are a great number of good natural harbours?—Yes, the Shannon itself is a fine natural harbour.

647. Mr. *Clay.*] Is the tonnage of the fishing-boats about 15 tons, the Wick fishing-boats?—I cannot answer the question.

648. On many parts of the coast it is the common practice to beach boats of that size; is there anything in the nature of the coast, is it very rocky and iron-bound, so that beaching the boats in a squall is sure to be attended with loss of property, and not unfrequently of life; what is the character of the coast?—There are very few sheltered places round that part of the coast.

649. With regard to the piers that you have contemplated in Wick Harbour, do you propose that they should have parapets for the sum that was estimated?—Yes.

650. Does your plan propose parapets to those piers?—Yes, lofty parapets.

651. What is the number of feet above high water?—Twenty-one feet, above high water of spring tides.

652. Captain Washington, who gave his evidence before the Committee on Monday, spoke of the chief advantage of Wick Harbour as regarding national defence; I observe you state that supposing this plan of yours, for which Mr. Coode has estimated, were carried out, ships of war generally would find perfect shelter there; what exception did you apply by saying generally?—Merely with respect to the number of them.

653. Not with respect to the size?—Not with respect to the size.

654. To come to Tees' Estuary; I know that sand-bank on which you propose a breakwater; I think I understood you to say that you do not like to give a confident opinion, whether all the purposes of a harbour of refuge would be answered at Hartlepool, by merely the harbour proposed, unless this breakwater were afterwards made; you did not say whether it would or would not be sufficient; you hesitated to say that it would be sufficient without?—Yes.

655. Have you ever thought what the effect of a breakwater on that sand-bank would be, leaving everything else as it is, without further works at Redcar or elsewhere; what would be the effect of a breakwater, so as to fix the sand?—I assume, if the bank be surmounted by a breakwater carried out to the extent of a mile, it would condense the stream of flood and ebb within such a much narrower compass, that the entrance would become scoured to a greater depth, and that instead of eight feet, I might expect to find 16.

656. Would it not of itself be a very useful work, without any further work?—Quite so. I have had an opportunity of recommending it on several occasions; I think it would be a useful and necessary work.

 657. It

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

657. It is pretty good holding ground in that bay. The channel of the Tees, from its mouth up to Middlesbrough, I think, is very good holding ground, generally.

658. You said that a harbour of refuge would be of great value somewhere near the Land's End, and you afterwards spoke of St. Ives, but that would only partially answer the purpose of increased safety to vessels in those seas; has it occurred to you that some improvements at Falmouth would be very valuable in making that a harbour of refuge?—Falmouth is a fine harbour; and all that is required is, that of dredging away a great accumulation of soft mud from the front of the town.

659. Is not that readily improvable at no very large cost?—Quite so.

660. Have you ever made any report to the Admiralty on that subject, or have you made any plan of the improvements you would suggest at Falmouth?—It has not come before me.

661. You think that a valuable improvement might be made, at no very great cost, in the harbour of Falmouth?—I think so.

662. Mr. *Ewart.*] I wish to ask about Douglas Bay, in the Isle of Man; where do you propose to carry out a pier; from what point in Douglas Bay?—I think I have a plan here.

663. Is it near the light-house?—It is proposed to run out a pier from the Little Head, in a north-east direction, 1,100 feet in length, which, with other appliances, would shelter 48 acres of low-water area, and 26 acres with a depth of from three to five fathoms at time of low-water of spring tides, and so provide a sheltered berthage for 20 merchant vessels, besides small craft, and a fleet of herring boats, and constitute a harbour accessible at all times of tide, and sheltered in all weathers, and where the steam packets could keep up a constant and safe communication with Liverpool.

664. And that would give quite sufficient shelter to the vessels in the harbour of Douglas, as well as to those in the refuge harbour?—Yes.

665. Mr. *A. Smith.*] With reference to the north part of Scotland, have you ever examined the coast about Peterhead and Fraserburgh, with reference to forming a harbour of refuge?—I have been at Peterhead and Fraserburgh, but from the inspection I then made, and the information I had, I fear they would be very troublesome places to deal with, or to provide any important refuge except at some enormous expense.

666. I do not refer immediately to Peterhead, but taking the promontory round the north-east point of Fraserburgh?—Fraserburgh seems to have been improved very much latterly, and they are still going on with improvements.

667. I understood you to say there is no harbour that could be used by coasting vessels readily, between the mouth of the Tay and Peterhead, except the one you mentioned?—I have been misunderstood; Stonehaven is a small harbour, and Montrose is a very good one; but neither are accessible at time of low water.

668. What is the depth of water at low water?—At Montrose, seven feet.

669. You mentioned Aberdeen as being 21 feet at high water, do you know what the depth of water would be at low water; you spoke of it as being a very good harbour?—The rise and fall there is about 12 feet; that would give nine feet at low water.

670. Would not, about the neighbourhood of this point at Peterhead, be a better position for a harbour of refuge, if it could be constructed, than Wick; what would be the advantage of Wick over Peterhead?—There might be two, but I do not see how the one could supersede the other very well; Wick is a place that is entirely unsheltered at present; and there is a great fleet of fishing boats to protect.

671. Trading vessels and shipping are what I am referring to, not fishing boats; taking the passing trade of the mercantile navy round this part of Scotland, I want to ascertain whether, if such a harbour could be constructed about Peterhead, that would not be a better position than Wick?—I consider an accessible and sheltered harbour at or near Peterhead would be a great boon to trading vessels, and most desirable to accomplish, if natural circumstances presented the facilities of doing so at a reasonable amount of outlay.

672. Would not vessels caught in an easterly gale off this coast, which is represented as beginning from the south-east, and running up to north-east, run

run to the Orkneys as readily as they could to Wick?—During my experience on the northern coast, I generally found that the heaviest gales commenced at west, and rounded by north to east; that almost invariably happened in the cases within my experience.

673. Now with reference to Tees, if this breakwater were formed, what would be the action of the current upon the coast itself; is it a soft coast?—I do not see that that current would be of any material amount on the coast; it might drive out more sand before it; but if we suppose that the mouth of the Tees, instead of occupying its present width, was to occupy only one-fourth, it would then be very wide; but the quantity of water would be condensed into one-fourth part of the sectional area, and therefore would increase the force of the current to that extent, and it is proper to assume that the effect would be in the same ratio. We can hardly predicate what it would be; but I believe the Tees might be very much benefited by a breakwater run out from Seaton Snook.

674. The breakwater you propose is a little south of Hartlepool; I want to know the effect of the breakwater you propose making to the south of Hartlepool, and what you call Tees' Bay; what the probable effect of that might be on the coast itself, by confining the current of the sea between the breakwater and the coast?—The effect of the breakwater I have suggested is, that it would lie really in the line of the current which would pass along both sides of it, and without interruption.

675. Are you aware there is considerable effect felt from the action of the water that is thrown off by the breakwater at Plymouth into the lateral bay, the outer side?—I should expect that the wave, not being able to expend itself on the shore, must recoil from the breakwater; but the very circumstance of the wave not coming into the shore, but being sent back by the breakwater, would give the still water inside so desired

676. Do you think that a detached breakwater would be much more preferable in this position, off Hartlepool, to one thrown out from the coast itself?—Yes, because the detached breakwater would be directly exposed to the force of the worst sea, and would receive and reflect the force of the sea, caused by the north-easterly gales which are so dangerous on the coast there.

677. That is the gale that you want to protect vessels chiefly from?—Yes, the north-easterly gales; when they are unable to prosecute their voyage, either north or south, they might take shelter there.

678. Is there any particular movement of shingle or sand along that coast, similar to the south coast of England?—It appears to me that there is a considerable motion of sand in Hartlepool Bay; I have observed it since the new harbour has been built there; there has been an accumulation of sand.

679. From what direction does it accumulate?—It comes from the south, and accumulates towards the northern end of the bay.

680. Mr. *Hassard.*] Did I understand you right, that the observations you made in relation to the Harbour of Dunbar were entirely in relation to it as a trading harbour?—Entirely as a fishery harbour.

681. I understood you apprehended that the works heretofore proposed at Hartlepool would be useless, unless the breakwater also was constructed; do you refer to those works mentioned as proposed by Mr. Rendel, or other works you propose at the bottom of the bight of the Tees?—I consider that the work proposed by Mr. Rendel is one principle of treatment, that is by piers running out perpendicularly from the shore, or nearly so; and what I suggest in lieu of it is a detached breakwater nearly running parallel to the shore.

682. I want to know whether yours was to be in lieu of that, or additional to?—In lieu of it; my object is to get rid of these perpendicular piers.

683. Do you consider that Mr. Rendel's would be a good work without yours?—I think it might be apt to collect sand, and to injure the anchorage.

684. Have you considered what effect your proposed breakwater would have, whether it would be dangerous to the foundation of the bank on which it would be erected; would it be affected by the increased velocity of the current?—I do not think there would be any increase of the velocity in the tidal current; it would merely split it into two parts, and the inside current would have the effect of maintaining the harbour free from sand.

685. Now at Wexford, you spoke of the sand bank shifting; do you allude

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

to the sand bank that forms the bar, or do you allude to the bank on the outside?—To the bar, which is outside.

686. The outside of the bank forms the bar?—Entirely outside, and encircling the harbour's mouth.

687. That is, the bank which is outside the bank which actually constitute the bar?—Yes.

688. Are there any banks outside that, again, to the south of the bank?—Yes; there is the Long Bank and the Lucifer Bank lying outside.

689. They are outside this bank, which constitutes the bar?—I am not aware of any large bank that is difficult of navigation outside of what I call the bar.

690. The water is not shoal?—There is a bank outside, but that is a deep-water bank.

691. You spoke of the Coal Channel; that channel I think is about five miles above the bar on each side?—It commences near the entrance at Rosslare Point, and runs up more than two miles.

692. Along the southern shore?—Along the southern shore, and is a very deep fine channel.

693. I believe it is not open up to Wexford; it becomes shallow?—There is a flat or a shoal called the Gulbar, which intercepts it for about a mile, and then commences another deep channel which runs past Wexford a great way up the river; all that I can suggest in the way of art, is to connect these two deep channels together, so as to have one continuous deep channel running past and above Wexford Bridge up the River Slaney.

694. I believe there is another channel; the channel at present used for the navigation of Wexford goes along the north shore?—Yes, it is circuitous, and surrounded by shoals on both sides; the boats get aground frequently; they cannot see their way in hazy weather.

695. Do you consider that by connecting the Coal Channel with the upper deep one, that the scour on the bar will be increased?—I have no doubt of it, because a column of water has an impetus in proportion to its length and depth, and therefore, if it be made continuous, the momentum will be increased.

696. You thought that scouring would keep the channel open if cut in the bar?—No; I think if the connexion above-mentioned were made, and the deep channel continued for many miles upwards, the volume of water going up and down would have a considerable effect on the sand at the bar; I would not predicate in what way; it ought to have a material effect; and wherever the tendency was to open a channel, I think that if so, under these circumstances, that channel would be kept open.

697. You are aware there are at present two channels into Wexford, an easterly, and a southerly channel called the Hantoon Channel?—Yes.

698. Will not the action of that increase the current more in the easterly channel?—Probably; I may, however, mention with regard to the original channel, which was the deepest in former years, in 1811 or thereabouts, there was a channel 16 feet deep, which continued open for a certain time, and was at time of low water very useful. Then the channel shifted and came round, and the Hantoon Channel began gradually to open, and acquired a depth of seven feet; I do not think it ever exceeded that. Now, the Hantoon Channel, which was the best channel, is silting up again. What I should wish to observe is, that with regard to a channel which is so frequently altering, it would be lost labour to work against natural actions.

699. If a vessel was coming from the south, driven by stress of weather, it is through that channel she should come?—There is no doubt that if the Hantoon Channel could be kept permanently open, it would be useful to the trade; it would be the safest way; they could see their way better by coming round from the south; they can approach the shore more nearly.

700. If they were coming up for shelter in a south-westerly gale, is not that the only channel by which they could fetch into Wexford Harbour?—Probably.

701. Did you state the bar to be a shifting sand?—Yes; the whole of the bar seems to be shifting. Captain Fraser made a chart of Wexford Harbour, and the mouth of it, about 10 years ago; but ever since that time the whole

whole of the sand banks at the bar seem to have changed their position. Where the deep water existed, there is now a bank which is dry at low water.

702. The reason I ask is, that Captain Washington stated on Monday that he thought the bank was clay and not sand?—I do not know what bank he may have alluded to.

703. Do you know what is the nature of the bar itself through which the channel would have to be cut?—Shifting sand. I do not see how it can be made permanent.

704. Are you aware that a good deal of the sand inside the harbour has been lately embanked?—I am quite aware.

705. Has that had any effect on the scouring that has taken place on the bar?—I do not think it is possible to have had any injurious effect; we had the best advice from eminent mathematicians, and they were distinctly of opinion that these embankments would prove very useful. The fact is, that the expanse of the harbour was so excessively great in former times in proportion to the mouth, that the time for the water to come in from the sea and fill it was not sufficient. It never did fill the interior space formerly.

706. And would that increase the velocity of the current?—In the channels inside, but not over the bar.

707. I am speaking merely of the bar outside?—No.

708. Do you know the coast between Wexford and Waterford?—I have been along that coast some years ago, but I cannot fix my memory as to the time.

709. Do not you know generally it is a foul coast until you come to Waterford Harbour, a series of rocks, and so on?—I could only speak by having the map before me. I have been along that part of the coast.

710. You said the bar of Waterford was a sand-bank?—Some part of it is sand and some harder material.

711. Is it not principally shingle?—I believe a great portion of it is, and it is upon that circumstance that I should ground the probability of its being permanently improved if dredged out.

712. It is not shifting?—I think it has been constant.

713. Do I understand you to say that it was very shallow at low water?—I think I did say so in answer to a question that was put to me, but I do not recollect exactly the depth at low water.

714. Is there not a minimum depth of from 12 to 15 feet at low water?—I cannot tell, I spoke inadvertently on that occasion, I now find it is 16 feet.

715. You stated that the deepening of the bar at Waterford would be very important to the trade of Waterford?—I think so.

716. Are you aware of the character of the ships which carry on the trade there?—I can only judge from my recollection of the number of vessels that I saw along the quay.

717. I am speaking of the character of them; were they large or small?—Large and small.

718. Do you not think it probable, that the vessels of the character employed in the local trade of Waterford could run in and out at all times of the tide?—I should presume not all, but I cannot speak to the point.

719. With regard to harbours of refuge, you stated there was no harbour where a vessel could run to between Cork and Waterford?—The harbours of Youghal and Dungarvon, I believe they are not very accessible.

720. I mean, by a harbour of refuge, a harbour that a vessel could take at any time of the tide if caught in a severe south-westerly gale?—I am not aware of any on that part of the coast that could be converted into a harbour of refuge.

721. If a vessel in a south-easterly gale could not go into Cork if she was outward bound, would it not be of great advantage for her to run into Waterford?—No doubt about it, in a south-westerly gale.

722. You think it would be much better to run into Wexford or Waterford?—To Waterford.

723. If she were prosecuting her voyage down channel you think Waterford would be better?—The Waterford harbour would be better.

724. I am speaking with regard to position; supposing a vessel, obliged to put back in a south-westerly gale, and not being able to fetch Cork Harbour, would it not be of great advantage to run into Waterford?—Unquestionably.

725. Lord *John Hay*.] With regard to Wick, do you consider that the

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

harbour that the Fishery Society proposed to construct would be effective for the purpose of enabling packet steamers to land their cargoes and passengers?—The fact is, that in a S. E. gale, when it would be most wanted, the sea, I apprehend, would run right over the pier, and therefore it would be rather dangerous for any vessel to lay near it.

726. Then it would be of no use to any vessel making that port during bad weather?—They could take up a position inside, but still they could not take shelter under the pier at time of high water.

727. Would they not be able to run into the harbour?—I think they might run into the harbour, but it would be a very awkward thing if a large fleet of fishing-boats were striving to get in at the same time.

728. I mean vessels, not fishing-boats?—I do not see any reason why vessels should not enter it, except for the chance of collision with the boats.

729. Are you aware that the sea breaks right across the harbour, outside the mouth of the proposed harbour?—I am certainly not aware of it.

730. With reference to the possibility of boats landing upon the coast, that is, landing upon the beach, and being hauled up, do you think there is any part of the coast where boats could be beached in the night, and hauled up with a large cargo of fish on board?—There are some corners here and there which would afford that accommodation.

731. Do you think it at all practicable to haul a boat up with a load of fish in it with any sea at all on?—I can hardly attempt to answer that, not having a sufficient knowledge of seamanship.

732. Do you suppose that the reason that a larger number of vessels do not resort to Wick, is in consequence of there being no accommodation for them?—I should imagine the first reason against it would be the vessels being afraid of being caught in a gale, and having no shelter.

733. With regard to their running to Cromarty, do you imagine that Cromarty is of any convenience whatever to a vessel trading in that part of the sea?—I should presume that a vessel caught in the Moray Firth would be very awkwardly placed.

734. It would run as a last resort?—Yes.

735. But it is a very great way to leeward?—Yes.

736. And a vessel might take some days in coming out of that harbour of refuge to regain its original position; is that your opinion?—Yes.

737. Have you any idea what the whole value of the vessels engaged in fishing on that part of the coast is, not belonging to Wick alone, but those that would be likely to use Wick, supposing a gale of wind should come on?—I should imagine that it might extend to 100,000*l.*

738. I mean the whole, not only those which frequent Wick at the present time, but all those on the coast which would be likely to use it, as it is the only place to which boats would run?—It would be more than I said; probably 150,000*l.*, or more.

739. So that if a harbour were constructed there, it would not only be for the accommodation of boats engaged in fishing from Wick, but for boats engaged in fishing on other parts of the coast?—It would serve equally for both.

740. Is there any place at Wick where a steamer could coal, if it was necessary to station a steamer there?—There is no place that I am aware of at present where it could do so with convenience; but no doubt, if both piers were erected, they might lie alongside.

741. I am speaking of the present moment?—I know of no place at which they could at all times take their coal.

742. Is there any place on the north-east coast of Scotland at all where a steamer could take in coals for a certainty during any weather?—Not during any weather.

743. Excepting Cromarty?—Excepting Cromarty.

744. There is none from Cromarty to Long Hope?—That would be the measure.

745. With reference to the proposed breakwater off the Tees, supposing the wind were blowing strong from the southward, and a vessel could not fetch this anchorage, I suppose she would be obliged to make for the Firth of Forth, or stand to sea?—I think so.

746. Supposing the wind were blowing from the southward and eastward, and she

she were to leeward?—There is no reason why she should not make her way to the Firth of Forth.

747. She would go there?—Yes.

748. But supposing her object was not to go there, but to come to the other harbour, she would be obliged to run to leeward; there is no protection on that coast to the northward of the Tees?—There is no protection to the northward of the Tees.

749. Are you at all acquainted with the vicinity of Coquet Island?—I have not examined it with a view to an object of shelter.

750. You are not at all acquainted with the locality?—I have not had an opportunity of examining Coquet Island.

751. Do you know of any place at all to the north of Hartlepool that might be adopted for a temporary place of refuge?—I am not acquainted with any place that answers the purpose.

752. With regard to your breakwater which you propose to make off the Tees, would it not be open to a gale from the south east; would not the sea rush in round the lower point?—A gale being from the south-east would be one parallel to the shore.

753. Along the shore?—Yes; I do not think it would create a heavy sea.

754. You think, as you propose the breakwater, that no sea would come in with a wind from the north; nothing of importance; the turn at the end of the breakwater would be sufficient to break the sea?—I think so; it would not be so much a protection against the wind, but against the wave brought up with the wind.

755. Is not the sea greater when the wind gets round to the north-east?—The heaviest sea thrown upon that shore would be from the north-easterly wind.

756. I mean the sea naturally becomes greater towards the end of the gale?—That ought to be the case.

757. Supposing the gale arose at the south-east, and went round to the north-east, the heaviest sea would be towards the end?—I think so.

758. As you have proposed to construct this breakwater, do you think that the northern end would be sufficient to break that sea?—I think we find in shoal water, that is to say, within five fathoms of water, that the wave always comes on to the land parallel to the shore; it receives the impression of the ground, and whatever it may be in deep water at sea, when it approaches the shore it generally takes the form of the shore; the succeeding waves come on parallel to the shore, and therefore must strike the breakwater, which I have suggested. It has only occurred to me, since I have been summoned, that this principle might be the best protection against the sea.

759. Lord *A. V. Tempest.*] I believe you are principally acquainted with the coast from St. Abb's to Flamborough Head?—Yes.

760. Is it not the case that there is a distance of about 150 miles of an extremely exposed coast, which during the prevalence of easterly and north-easterly gales is extremely dangerous, and causes great loss, to a large amount, of shipping continually passing and re-passing by that coast?—In extending that question to St. Abb's Head, I do not think it would be so, but the line of coast that is dangerous seems to be from Huntcliff on the south to Newbiggen. I think that comprises the bay that is most dangerous to vessels.

761. You would limit the losses that I am alluding to as taking place between the Tyne and the Tees?—Between the places mentioned in last reply.

762. Have you seen the Wreck-chart published by the Admiralty?—I have got it here before me.

763. Is it not the case that upon that Wreck-chart, wrecks are marked all along the coast, the large proportion of them are between the points you have mentioned; there is also a large amount of wrecks and casualties marked upon the Wreck-chart, as taking place upon the whole line of coast between St. Abb's and Flamborough Head?—It is obvious that we must attribute these wrecks to two distinct circumstances: the one is the danger of the coast itself, and the other is the quantity of shipping passing; the number of wrecks will depend upon the number of vessels exposed; the vessels coming out of the Tyne are numerous, and therefore the casualties that take place there must be to a great extent equivalent.

764. That would be one cause of the number of casualties?—Yes, I should say

Capt *James Vetch*, R. E., F. R. S.

15 July 1857.

say the most important cause; these wrecks are not one-half of them arising from the danger of the coast, but from the number of vessels exposed to it.

765. Am I not right in understanding you, that on a coast of the exposed nature of that coast a large amount of loss both of property and of life takes place, and that a harbour of refuge is most essential to be made on that coast? —Certainly.

766. I believe you have stated, that the number of wrecks that have taken place is on account of the large amount of shipping that is continually entering and going out from the Tyne?—And to being embayed; they cannot get away.

767. There is a similar large amount of shipping entering and going out both at the Tees and the Wear?—Yes.

768. Therefore you wish to convey to the Committee, that, looking to the large amount of vessels engaged on that coast, and the dangerous nature of the coast, it is most essential that some harbour should be constructed upon that coast in which vessels could take refuge at all periods?—Precisely.

769. You stated to the Committee a preference in favour of constructing a breakwater at Seaton, on the north side of the Tees entrance; I did not quite understand whether your proposition of constructing the breakwater on the north side of the Tees was to be in lieu of the proposed works at Hartlepool, or in addition to them?—In addition to them; or, if Hartlepool were never to be constructed, it is very possible it might give to them a great part of the service which would be expected from the breakwater. I believe it is possible, that if a breakwater were constructed at the mouth of the Tees, proceeding from Seaton Snook, and extending nearly a mile, to the White Buoy, the mouth of the Tees might eventually prove a shelter, not only for vessels going to the Tees, but to the passing trade; but without actual experiment it is difficult to say; but I do not think it would supersede the exterior breakwater.

770. You do not consider that constructing the breakwater you propose on the north side of the Tees would supersede the necessity of constructing some harbour of refuge on the coast that we have been alluding to?—I do not think it would; there is a possibility of it, but I do not think it ought to be reckoned upon.

771. You propose that the breakwater on the north side of the Tees should be made in addition to the harbour of refuge to be made upon the coast?—I think it would be very desirable to provide for every contingency.

772. I believe you stated just now, in answer to Lord John Hay, that the breakwater you propose near the Tees would not be any protection in the event of strong south-easterly gales?—I am not aware that I stated so.

773. Are there not always great disadvantages attending tidal river harbours? —If they are small rivers, there are; but we do not expect to find it so on the Thames; the Tees is a very large estuary, and it has a very wide mouth.

774. You think that by constructing a breakwater, the entrance of the Tees might be so improved as eventually to avoid all the inconvenience that is generally attendant upon a tidal river harbour?—It often happens that, after a gale of wind, there is such a heavy swell on the bars of the Tyne and Tees that vessels are unable or unwilling to cross them, even in fine weather.

775. Do not those disadvantages exist with regard to the entrance at the Tees?—They do exist there.

776. You think they could be effectually remedied by the construction of the breakwater that you suggest?—My proposition would be, in the cases of the Tyne or the Tees, if the bars could be removed, the difficulty and danger of entering and leaving these rivers would be done away with; if that cannot be done, resort must be made to a harbour of shelter outside.

777. But, in constructing a harbour of refuge, would it not be advisable and preferable to construct it upon such a site that it would not be exposed to these disadvantages that are attendant upon tidal rivers or harbours?—Quite so, and for that very reason I think that a harbour of refuge near Hartlepool would be the most safe and secure, and the only one that would most effectually answer the purpose.

778. The most eligible place on the coast for the construction of a harbour of refuge, in your opinion, is Hartlepool?—Yes.

779. You also think it would be an additional advantage, if it could be done, to expend money with regard to the improvement of the entrance both of the Tyne and the Tees?—At the Tyne there are now piers going on which confine

and

and circumscribe the River Tyne to a comparatively narrow issue, that will give increased strength and depth to the stream at the entrance, and will, I trust, give a depth of 16 feet, where there are now only seven or eight, at time of low water.

780. Are you aware that there was a deputation in 1854 to the Chancellor of the Exchequer and the First Lord of the Admiralty from the Commissioners of the Tyne, in favour of applying for a grant of public money for improving the entrance into the Tyne?—Yes.

781. And do you consider that as a reasonable claim, or that it would be of advantage that the money should be given towards the improvement of the entrance of the Tyne?—Considering the immense traffic and wealth on the Tyne, it is one of those cases where we might presume the merchants and the parties locally interested should be at the expense of improving their own river.

782. Would not the same reasoning apply to any grant of public money as to improving the entrance of the Tees, that the trade of Stockton largely increasing, they would be able to bear the expense of any such improvement?—I think it would equally apply to the Tees, only that the Tees' merchants are less able to effect the object than those of the Tyne, but I think they ought to contribute.

783. And is it your opinion that Hartlepool is the most eligible site for a harbour of refuge on that side of the coast?—I think so; it being in the very bight of the bay it ought to catch every vessel embayed there.

784. You seem to be fully acquainted with the enormous importance of the shipping and the trade engaged on that coast: I should like you to answer this question, looking to that quantity of shipping upon that coast, and to the trade of those ports, and also looking to the object of saving the largest amount of property and of life, the result of shipwrecks, which part of the coast do you consider has the greatest claim for a grant of public money towards the construction of a harbour of refuge for protecting the shipping; I mean, comparing the coast we are alluding to with the other coasts of England, do you not consider that that portion of the coast has a larger claim, and a stronger and greater claim to a grant of public money in aid of a harbour of refuge than any other portion of the coast in the kingdom?—I think so.

785. Sir *F. Smith.*] How do you propose to construct the breakwaters and harbour of Wick; is it by rubble stone, or by upright walls, faced with ashlar?—It is proposed to use rubble stone until it reaches to 12 feet below low-water mark, and from that point to carry an upright wall to the summit of the parapet.

786. Where are the materials to be found for the work?—As far as my information goes, I believe that on both sides of the shore of the harbour of Wick there are very extensive quarries of red sandstone, which would be applicable to the purpose.

787. What would be the minimum depth at low water of the enclosed space?—The maximum would be seven fathoms, the minimum no fathoms.

788. Is there any likelihood of any bar there?—Not the slightest.

789. What number of vessels, frigates for instance, would be able to swing in that harbour, as proposed to be enclosed?—I consider that from 200 to 300 vessels might lay there of all classes, at moorings; but, if at their own anchors, then about 20 vessels from 12 to 20 feet draught, and 100 of less draught, besides fishing boats.

790. Vessels of large tonnage?—Yes.

791. There is a long line of coast from Peterhead towards the bight of the bay, on which coast, according to the Wreck-chart, a great number of vessels have been shown to be wrecked; do you imagine that those vessels would have been less likely to have been wrecked by having a harbour at Wick or Peterhead?—It is a very rocky and shallow coast all the way from Kinnaird's Head to Nairn, and vessels getting embayed there, must run great risks.

792. Which of the two ports do you think would be most likely to prevent those wrecks, a port at Wick, or at Peterhead?—From the observations I have made, and my inspection at Peterhead, I have found difficulty in finding any mode of providing a harbour of refuge; the conditions of the case were not favourable.

793. If 30,000 *l.* is expended at Dunbar, what would be the result in general accommodation to the navigation?—Dunbar is a very exposed harbour at present, but it has a good natural feature that might very easily be improved;

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

for instance, there is a lofty line of rocks, trap dyke, running parallel to the shore, which now serves half to inclose a deep anchorage, and therefore making good the intervals between the gaps of this natural dyke, the work would be accomplished at a comparatively small cost.

794. What area should you enclose, according to your plan, at Dunbar?—I hardly know what is contemplated; but upon the larger scale, that would be desirable, there would be 70 acres of 12 feet and upwards depth of water, and 60 acres of 18 feet and upwards at low-water spring tide.

795. Can you tell me where the materials would be got from for making that harbour?—It is a very rocky coast, and there is plenty of stone thereabouts, both limestone and sandstone.

796. Is it not rather a theory of yours, to form breakwaters parallel to the coast, rather than breakwaters projecting from the coast?—I have suggested it on this particular occasion, because I am afraid that at Hartlepool the sand, being intercepted by piers perpendicular to the shore, would cause it to accumulate and fill the anchorage to some extent, more or less, as at Howth, near Dublin.

797. In what depth of water would your breakwater be made at Hartlepool?—It might extend to seven fathoms, and probably eight.

798. What distance from the shore?—About a mile, or rather better.

799. Would not the cost be much greater, length for length, in the construction of a breakwater parallel to the coast, rather than one projecting from the coast at that distance from the shore?—The cheapest breakwater would be one projecting from the shore, from the facility of carrying the materials by rails.

800. Now, coming round to the south coast, vessels met in the chops of the Channel by a strong gale, would they not be more likely to come into Penzance Harbour than St. Ives' mouth, by a north-easterly gale?—They are convertible harbours. Sometimes vessels that dare not now go into St. Ives, caught in a northerly gale, are obliged to come round the Land's End and take shelter at Penzance; and otherwise, vessels afraid of being caught at Penzance go the other way.

801. If a southerly gale were to prevail, vessels would go up the Bristol Channel; they would hardly stop at St. Ives?—The utility of enclosing St. Ives is, that it is the only good anchorage along that part of the coast; a northerly wind sometimes comes up very suddenly, and they have no alternative but to go ashore; the holding-ground is remarkably good; but it has happened that all the instances of wrecks have arisen from a northerly gale coming on suddenly.

802. You are acquainted with Portrush, are you not?—I am.

803. Would it cost much to make the harbour you have suggested there?—On the Skerries?

804. Yes?—It has nautical circumstances in its favour, but I am unable to offer an opinion as to cost.

805. Vessels of what tonnage do you think would be able to take refuge there?—It is a deep channel from 8 to 12 fathoms.

806. The harbour of Portrush takes in vessels of any size?—I think the harbour of Portrush is anything but a good harbour.

807. Can you give any idea of the cost of the improvement you propose at Wexford?—£. 27,000.

808. Have you not a sufficient depth of water?—That would give 18 feet at low-water, inside the bar.

809. What area of refuge have you at Wexford?—I am speaking now of the channel inside of the harbour mouth.

810. The harbour is a defensible port; can that be made a harbour of refuge without much cost?—No.

811. And vessels of very large draught of water could get in there?—No, only vessels of small draught can get over the bar.

812. Have you formed any decided opinion as to the construction of breakwaters, whether they ought to be sloping or vertical walls?—My opinion is, that the upright walls are the best.

813. What harbours of refuge are being formed now by upright walls?—Dover.

814. Is there any other being formed entirely of upright walls?—No, I am not aware of any other.

815. The upright walls are approved of by the commission constituted for the purpose of deciding that point?—Yes.

816. And yet we are only constructing one harbour on that principle?—Yes; I forget whether there are any of the Channel Islands constructed on the upright principle; I believe not.

817. Have you turned your attention to Dungeness, as a harbour of refuge?—It affords some amount of refuge, because the wind being in one direction, north-east, you get shelter on the south-west side, and if the wind be from west, you get shelter on the east side; but it is a place, where there is an accumulation of shingle being thrown up by nature, and which is still going on, so that one would be afraid to meddle with such a site; the operations of nature cannot be controlled, and would still go on; the accumulations of shingle there would probably fill up any harbour.

818. I suppose one reason for using the upright walls at Dover is, the difficulty of getting material?—One difficulty is, occupying so much ground in a small bay.

819. Mr. *Dodson.*] Do you consider that no harbour of refuge is required in the narrow part of the English Channel, between Portsmouth and Dover?—There was one projected near Newhaven, but I think there are many other places that deserve the preference.

820. What is the distance along the coast from Portsmouth to Dover?—I should say about 90 miles at a guess.

821. Are you not aware that it is upwards of 120?—I am quite willing to admit it, if you say so.

822. Is there along that coast any harbour that is accessible at all times to vessels of any considerable size?—I believe not.

823. Have you any idea of what the tonnage of the vessels is passing up and down the Channel in the course of the year?—It is enormous; but I cannot say how much.

824. The tonnage that goes up and down the Channel, does it consist principally of vessels belonging to localities situate on that coast, or are they vessels engaged in the general trade throughout the world?—I presume 9-10ths are vessels proceeding from the Thames on foreign voyages.

825. Those are vessels that go to all parts of the world?—Yes, they go to all parts of the world, and take a very considerable offing.

826. Are those vessels that go distant journies?—Yes.

827. Are they generally well equipped and well provided and commanded?—That ought to be their condition.

828. Should you think it is so generally?—I believe so.

829. You would not attribute the wrecks that take place to such vessels in the Channel to any incompetency on the part of the captains, as a general rule?—Very often it takes place from recklessness, by getting too near the shore, not keeping a sufficient distance to sea.

830. If a vessel is beating up Channel in an easterly gale, is not that vessel in great danger from getting embayed in one of those deep bays that lie along that coast?—Do you mean between Portsmouth and Dover?

831. Yes.—It is a very long line of straight coast, and I think the dangers and accidents arise from vessels keeping too near the shore.

832. They are liable to get embayed?—It is necessary to be very careful in such a long straight line of coast not to get too near the shore.

833. Are there at Beachy Head and Dungeness too very good projecting points?—Beachy Head is a very high point, but not very projecting.

834. Have there not been several wrecks of large vessels there?—No doubt there have been.

835. Was not Beachy Head recommended by two commissions as a very fit place for a harbour of refuge?—A little to the westward of Beachy Head, at Seaford.

836. Was not that recommended as a place well suited for mercantile purposes?—I think not.

837. Was that not the case with the commission which reported in 1840?—I do not recollect, but my impression is that it was intended for a man-of-war harbour.

838. Was not Dover specially recommended by the commission of 1840 rather for military purposes, and Beachy Head for mercantile purposes?—

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

My impression is that the harbour proposed at Seaford, near Beachy Head, was intended for the naval service.

839. Have you not at the Admiralty a plan submitted for a harbour of refuge at Beachy Head since these commissions reported, since 1845?—I am only aware of a design by Mr. Brooks, of Newcastle; he is very anxious to have something near Eastbourne.

840. Do you know what he estimated the cost of that at?—I do not recollect.

841. Could you furnish a plan to the Committee?—Yes.

842. With regard to these numerous wrecks on the eastern coast, what class of vessels generally are they that are wrecked there?—The majority I presume are colliers.

843. Vessels belonging to localities along that coast?—From the Tyne, Wear, and Tees.

844. Rather belonging to the locality on that coast than vessels engaged in general trade?—Vessels engaged on distant voyages take a larger offing.

845. What is the average amount of tonnage of those vessels?—Three hundred tons I presume.

846. Are they, as a rule, commanded by competent masters?—I cannot answer that question.

847. You have no information of it?—No.

848. You have not investigated the causes of the wrecks on this coast at all?—Excepting the natural causes. There is one cause that has not yet been mentioned, and that is, that when a gale of wind comes from the north-east, the vessels are not able to enter the Tyne and the Wear, except when it is near high water; and therefore they crowd and push in in such numbers that they get in each others' way, and get damaged or lost.

849. Could you give the Committee any idea of what proportion of these wrecks on the eastern coast are caused through the want of a harbour of refuge for vessels to run into, and what proportion arises from other circumstances?—I could not.

850. You have not considered at all what number of these wrecks may be caused through negligence or incompetency of masters?—I should imagine that those arising from bad seamanship, the greatest number would not be one-tenth of the whole.

851. Have you any knowledge of that?—I do not speak from experience.

852. Mr. *Kendall.*] You say that after passing Plymouth, getting down towards the west, that something is wanting in the neighbourhood of Penzance; there seems a great number of dots; do you know what wind causes these?—South-east.

853. You pass rapidly from Penzance on to St. Ives, would St. Ives be available as a harbour of refuge to the vessels on that coast?—Yes.

854. You said you thought Falmouth might be much improved by deepening the entrance of the harbour?—Yes; there are rocks which are troublesome to large vessels getting in sometimes.

855. When you pass them would you get into deep water?—Yes; it is one of the finest harbours in the United Kingdom.

856. After you get in?—Yes.

857. Would it be a very large expense to deepen Falmouth Harbour?—It ought not to be attended with heavy expense.

858. You never had any estimate of it?—No.

859. With regard to Penzance, have there not been a great many wrecks there lately?—Yes.

860. Would not a breakwater at Penlee Point be of service?—I think in Mount's Bay a breakwater thrown out from the mount itself might be the means of sheltering shipping from the worst winds, the south-east, at a moderate expense.

861. You would not recommend that idea of Penlee?—A shelter provided at Penlee Point must be of considerable extent, and run into very deep water, the cost of which would be very great compared with the public benefit to be conferred.

862. You hold St. Ives to be the only place on the north of Cornwall, at all available?—I would not say the only, but the most available.

863. You

863. You were speaking about a very large scheme near Towan, did you refer to that scheme of the late Mr. Treffry?—Yes.

864. You said you considered it too grand and too large, do you mean it would involve too large an expense?—Yes; the estimate was more than half a million; 711,000 *l.*

865. You do not think that it would be right to carry it out?—Such an expense would be thrown away at such a place.

866. Now, go towards Padstow, when you get in, it is very good, is it not?—When you get in, but there is a bank at the mouth of the Doombar which is very perilous.

867. Suppose you were to have a breakwater and condense the flow of water, would not that be an improvement?—I am afraid the Doombar is composed of quicksands, which are very difficult to deal with; and I do not see why, if they accumulate there now, they should not do so when the breakwater is placed there.

868. You know the locality well?—Yes.

869. And you think a breakwater might be a failure?—I am afraid so.

870. Now, I come again to St. Ives; do you know St. Ives very well?—Yes.

871. Have you reported upon it?—Yes.

872. Was there not an Act of Parliament in 1853, authorising an extension of the pier?—The deposited plan showed a new pier 950 feet long, but extending only to about low water mark.

873. Have you seen that plan?—I have.

874. Do you think that would be effectual?—It would be of very little public benefit. In 1854 another plan was submitted for the approval of the Admiralty, 600 feet long, and extending into 6 feet at time of low water.

875. You have talked of carrying out the breakwater for 2,000 feet, and you said that 1,000 feet might be a benefit?—It would be of good service.

876. What class of vessels would that 1,000 feet aford shelter to?—It would reach into six fathoms; at the end of the 1,000 feet there is deeper water and good ground.

877. Would that pier, if carried out, interfere with the larger plan proposed? No, it would be the first portion of the entire work.

878. That might be of service to the smaller craft?—It would be suitable both for small and large craft; there would be six fathoms water at end of pier.

879. Do you think the larger scheme essential?—From the evidence given there, it would be important as a public harbour of refuge.

880. What class of vessels would the proposed new pier afford shelter to?—Under the Act 1853?

881. Yes.—Vessels of large burthen might come in at the time of high water, drawing 15 feet, but there would be only 6 feet at time of low water.

882. That would not meet your views, as far as a general harbour of refuge is concerned?—Vessels driven into the bay, or from their anchors there, could not enter such a harbour at all times of the tide, and might therefore be driven from their anchors and lost, as is now too frequently the case.

883. You estimate the expense of the 2,000 feet at 174,000 *l.*?—Yes.

884. What do you estimate the 1,000 feet at?—Less than half, because it is in water of less depth.

885. Do you think it very desirable that that should be carried out?—Yes.

886. Both as regards Penzance and the east of Penzance, and also the north coast?—Yes; Captain Sheringham has told me that, on more than one occasion, he found that, from want of a shelter there, he was obliged to run round the Land's End, and get into Mount's Bay.

887. You think that the pier proposed in 1853 would be merely a local accommodation, and if your plan were carried out, even to the extent of 1,000 feet, it would be a great public benefit?—The work proposed in 1853 would not be the means of saving vessels at all times of the tide; the other would effectually.

888. Do you think that no public advantage would accrue from the pier proposed in 1853?—I do not say that; it would be a shelter for boats at time of low water, and for ships at time of high water.

889. Is not the anchorage at St. Ives very good?—It is very safe ground, no rock, and strong holding ground, yet in storms from the north the anchor drags, or the cable parts.

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

890. Near Falmouth Harbour is there not a pool called St. Just Pool?—I ought to know it; it is the man-of-war anchorage.

891. Is it not very deep water?—Yes.

892. Mr. *Traill.*] Would not a harbour of refuge be much better near the entrance of so difficult and tempestuous a sea as Pentland Firth, than 70 or 80 miles off?—That is my opinion, it being near a great turning point.

893. The land runs east and west from the extremity of the island?—A vessel might very easily get up to Wick, and the wind being from the west, she could not get through the Pentland Firth; therefore, must wait for a wind.

894. And the same circumstance as to the position of Wick would render it more expedient to have a naval station there for the defence of the North Sea?—Yes, in time of war. The question that was put to me was, would not Wick be better than Longhope in time of war, for vessels to resort to: I think Wick better, because vessels could get stores and other requirements that they are in need of, which they could not at Longhope.

895. There is no artificial harbour at Longhope, it is merely an anchorage?—Yes.

896. Vessels could not coal there?—No.

897. Do you consider the harbour of Aberdeen accessible at all times of the tide?—Not at all times of the tide; but it is very much improved, and the former danger is now obviated, which in former times was very great.

898. I know that vessels cannot coal at Aberdeen; they cannot get in; they are obliged to coal in Thursoe Bay?—The fact I have stated at Aberdeen is, that at the time of high water there is now 21 feet; the bar is removed. There is 12 feet of rise and fall, which would leave nine feet at low water.

899. And there is a great fresh coming down the river?—Occasionally.

900. Mr. *Liddell.*] Before I go to Tees' Bay, I wish to put one or two questions with regard to Wick; you told us that Cromarty Firth is very little frequented by vessels, but that it is a safe harbour when reached?—It is a very safe harbour.

901. Does not the fact that Cromarty Firth is so little resorted to, show how little necessity there exists for a harbour of refuge on those shores?—Cromarty Firth is so much retired; recessed into the bight, that it is out of the course of vessels navigating. On the contrary, Wick is exactly on the line of navigation.

902. But that fact, coupled with the records of the Wreck-chart, show that there are very few wrecks take place on that coast?—Very few, from the circumstance I stated, that really the wrecks are as dependent, or more so, on the quantity of shipping passing, than from the danger of the situation.

903. What I wish to ask is this, is there a necessity of a harbour of refuge at Wick for the preservation of the vast amount of boats engaged in the fishing trade?—That is the prominent part of the question.

904. I wish to know whether you do not think that, for a much less cost, refuge sufficient to afford protection to those small fishing vessels might not be given at Wick, without incurring the large expenditure of 186,000 *l.*, which you have named as an estimate for the work to be constructed at Wick; might not a much less amount of money provide refuge sufficient for those small vessels?—The question divides itself into two; there are two piers, one to the north and the other to the south; either one would do good, and, therefore, if the expense of both is too much, one pier would afford the benefits to a great extent that is proposed, if the whole sum is considered unreasonable.

905. You have spoken of inner harbours being dry at low water?—Yes.

906. Would it not be possible to make those inner harbours available as places of refuge for the small fishing vessels?—I think not, except at an expense almost equal to the other.

907. You have spoken of a detached breakwater to be constructed in Tees Bay; I want clearly to understand this, do you intend that breakwater to be a protection to the entrance of the harbour at Hartlepool?—It would have the effect of protecting the harbour of Hartlepool, and would give quiet water for vessels going there; but it would also serve as a distinct object to shelter the multitude of vessels that require refuge on that part of the coast.

908. You describe it to be situated at about a mile from the shore?—I should like to make the measurement to see if I am correct. I may take this opportunity of stating again that what I have said about this breakwater parallel to the

shore

shore is a mere suggestion that has arisen since I got notice to attend the Committee, and, therefore, is subject to further consideration; but the principle that occurs to me is, that it is the form of breakwater which would most effectually protect the shipping, and at the same time prevent sand from coming into the shelter, and accumulate there, as happened at Howth.

909. Do I understand that vessels may run and lie protected from the break of the sea between the breakwater and the shore?—Yes.

910. You imagine they will be able to lay in that area protected by the breakwater of a mile in length?—Yes.

911. Have you ever examined the sand-bank on which you propose to construct that breakwater?—Only the soundings that we have from the Admiralty charts.

912. Are you aware whether it is a moveable or a fixed sand at present?—I think it is very fixed; that the bed of the sea there is permanent, and not liable to change.

913. In the event of its proving to be of not so fixed a character as you describe, would it be a safe foundation on which to construct mason work?—I presume in the principle to be adopted there must be a basement or foundation of the rubble stone, which would take its own bearing and make its own base.

914. Do you consider, as a general question, it would be safe to construct a rubble foundation on a moveable sand-bank?—I do not consider it is a moveable sand-bank except the mere surface, and that the rubble stone being dropped in, would very soon find its bearing through that.

915. It would be consolidated?—It would descend by its own gravity to the firm ground, and give a foundation similar to all other works of a like nature.

916. Have you examined, or do you know anything of the nature of the bottom, whether it would be good holding ground in the space that you propose to protect by this breakwater between it and the shore?—I believe it is very good holding ground; it is nearly the same as that proposed to be enclosed in Mr. Rendel's design, and which has been very generally accepted as good groundfor anchorage.

917. What length would you propose this breakwater to be?—I must again observe that what I suggest is a mere sketch, to communicate the impression that I now have; but it is not at all intended as a plan, but merely a sketch to convey my meaning as to the principle of the work.

918. What is the natural length of this sand-bank?—There is no particular sand-bank here.

919. What would be the length that you think would be sufficient to afford the protection you describe?—About a mile.

920. I suppose you have not taken any step to furnish an estimate of the cost?—I have not even completed my view of the proposition; I merely offer this to show that a detached breakwater might probably in this case be better than one connected with the shore.

921. And you also said, that, in the event of such breakwater being constructed, it would be a very valuable adjunct to the work contemplated at Hartlepool?—It would protect the entrance to the harbours at Hartlepool.

922. You also spoke, and you laid considerable stress on certain works, the effect of which would be to narrow the entrance of the estuary at Tees' mouth, did you not?—Yes.

923. Supposing those works to be constructed, do you think that Tees' mouth would answer as a harbour of refuge for general purposes, or merely for local purposes?—I should doubt it very much for general purposes, but still it might prove useful to some vessels bound elsewhere.

924. In regard to the present state of things, looking to Tees' Bay as the position for a harbour of refuge, if you take Flamborough Head as the southern extremity of the radius I am describing, and Newbiggen as the north, I think the Wreck-chart will show you that the largest number of wrecks would seem to occur north of the Tees' Bay rather than south?—Yes.

925. We have heard a great deal about the south-easterly gales, and I can say, from personal knowledge on that subject, that the gale generally does rise from the south-east, and veers round in the course of its progress to the north-east?—May I beg to explain that the coast I was speaking of when the wind

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

began from the west and veered round by north to east, was on the coast of the north of Scotland and the Orkney Islands.

926. Captain Washington told us, and I can confirm what he says from my own experience of it, that our worst winds generally spring up from the south-east, and veer round, and arrive at their greatest point at north east?—It is as you say; but the most violent gales have been gales arising in the west, and veering round by north to north-east, and which raise the level of the sea along the east cost of England one or two feet; nevertheless, the storms which commence at south-east, and veer round by east to north-east, are those most felt on the coast in question.

927. But under those circumstances, supposing a large convoy of light colliers to be caught by a south-easterly gale, north of Tees' Bay, what use would the harbour of refuge be in Tees' Bay to such vessels; would they be able to make it?—I presume that the vessels, on leaving their ports, which would be the Tyne and the Wear, would endeavour, immediately on leaving these rivers, to get an offing.

928. I am speaking of vessels going northward, because they would leave in large bodies together, and return to the various ports situate north of Tees' Bay; I ask, supposing a large convoy of such vessels to be caught in a south-easterly gale, whether they would be able to make the Tees' Harbour?—Where are the vessels supposed to be when this arises?

929. North of Tees' Harbour; vessels bound to the various ports of the Tyne and the Wear?—Vessels being north of Tees' Harbour, and a gale from the south-east to arise, they would be unable to fetch the Tees, but if the gale became directly on shore their ability of going either up or down the coast would be the same.

930. An honourable Member of this Committee endeavoured to show that this was more of a local question than of a general question; are you aware in the last six months, that is the first six months of the present year, there left the ports between the Tyne and the Tees, 3,637 British ships, conveying goods to foreign countries; and, in addition to that, 2,808 foreign vessels, making a total of 6,445 engaged in the foreign trade, and conveying goods of the declared value to the Customs, of 1,971,024 *l.* sterling, besides coals and coke to foreign ports, of 1,660,103 tons; are you aware of that fact?—I do not know it; but I am quite willing to admit it.

931. Will not that fact point to this question as certainly not exclusively a local question; will not the fact of that large number of vessels engaged in the foreign trade seem to point to a harbour of refuge on this coast as something more than a mere local question?—Decidedly.

932. And when you couple that with the further fact, that 12,845 vessels conveying 2,588,443 tons of coals to ports in the United Kingdom, left the above-mentioned ports in the same period of six months, added to the statistics of the Wreck-chart, will not these two facts together point to this locality as one having perhaps a stronger claim than any other in the United Kingdom for a place of refuge for ships?—I am quite of that opinion.

933. Are you aware of the piers that are being constructed at the mouth of the Tyne at present?—I have not seen them since they were commenced; but I have seen the drawings of them, and the Admiralty gave their approval of them.

934. Under the most favourable circumstances, what is the greatest depth of water that you will obtain when those piers are completed inside?—There is now only seven feet water on the bar at low water; I think we may calculate on getting 16 feet, because the channel inside is of that amount.

935. Is that a sufficient depth to make it available?—It is not so great as might be desired, but is all which I think can be safely calculated upon, and would, nevertheless, prove of immense benefit.

936. That does not induce one to believe that it will be available as a general place of refuge?—It might, or it might not.

937. You describe the dangerous line of coast to lie from Whitby, on the south, and Newbiggen on the north; you are aware, no doubt, of the Fern Islands?—Yes.

938. Is not that the most dangerous spot on the north coast of England?—The trade we are now alluding to is that which passes nearly along shore.

The

The trade you mentioned, as European trade, gets its offing, and is not coastways like the colliers from the Tyne.

939. Are not light vessels in ballast very apt to be drifted if they have no place to run to, almost on any point of the coast?—Every point of that coast must be dangerous when a lee shore.

940. Lord *A. V. Tempest.*] There is one question I omitted to ask you, which is, looking to the formation of a harbour of refuge on the north-east coast in a national point of view, with regard to its being a harbour for Her Majesty's cruisers to go into, and giving facilities for coasting, provisioning, and watering, do not you think that a harbour of refuge on that coast would be most advantageous in a national point of view?—Do you mean in respect to Her Majesty's ships of war?

941. Yes.—There is the Humber and the Firth of Forth, which would seem to meet their case pretty well, and I do not think Her Majesty's vessels would be willing to approach the coast near Hartlepool.

942. I put the same question to Captain Washington, and I wish to put it also to you, as to whether it would not be advantageous in a national point of view to have a harbour holding out those advantages?—My opinion is not worth much, but I do not think Her Majesty's vessels would resort to such a place to coal, when they have the Humber and the Firth of Forth; they would be wary of coming too near the shore.

943. Mr. *A. Smith.*] Of these harbours which we have had reference to to-day, will you be kind enough to state which of those, or all of them, you have yourself personally inspected with reference to their being made harbours of refuge; Wick for instance?—I have been at Wick, but it is so long ago that I cannot speak to it of my own knowledge; I have perused everything that has been written on the subject.

944. How long is it since you have inspected Wick?—I have only seen it once.

945. Is it as much as 20 years ago?—I dare say it is.

946. Have you been at Peterhead?—I was there in 1846.

947. Did you examine it at all?—I examined it very narrowly; I went over every part of it.

948. Coming down southward of the Tees at Hartlepool; do you know its position?—I have been repeatedly at Hartlepool and the Tees.

949. And have you examined it with a view of making this breakwater?—Not with any particular view, but to gain a thorough knowledge of the position.

950. What you state to-day is from a general knowledge of that part of the coast, and not from having examined it specially with a view to the construction of this breakwater?—No. May I beg again to state that this detached breakwater is a mode of treatment that has occurred to me, but not a measure that I distinctly propose. It appears to me to be a mode of dealing with the subject desirable to be kept in view.

951. Can you state what are the facilities for procuring material for the construction of the breakwater?—The material must come from some little distance; the headland itself gives some.

952. What is the geological formation of the head at Hartlepool?—It is composed partly of the limestone of which this house is built, magnesian limestone.

953. The point at Redcar; do you know what the formation is there?—I have seen the place. There is a great deal of stone at Whitby; a good deal of sand-stone; but I am not aware of anything immediately near the site which would answer the purpose.

954. Of the other harbours we have had reference to, St. Ives, you have made an exact calculation?—You could not have anything better; you have very good stone at St. Ives.

955. Have you made a minute examination?—Yes.

956. Have you examined the coast between St. Ives up towards the Bristol Channel?—I have been at Padstow, and various other places along that part.

957. If a vessel were caught in a gale of wind and could not get to St. Ives, she would be obliged to take shelter in the Bristol Channel; not being able to get to St. Ives, where would she go to?—It is an iron-bound coast; Padstow is almost the only place she could go to, and that is difficult.

 958. I mean

Capt. *James Vetch*, R. E., F. R. S.

15 July 1857.

958. I mean a harbour of refuge; where would she go to?—I do not know that there is any harbour there; there is New Quay.

959. Would she not be obliged to run up to Lundy Island?—I think so.

960. Mr. *Baring.*] With reference to the evidence you have given to-day, is it not more especially to engineering points that you wish your evidence to refer?—I do not pretend to be a seaman.

961. You do not feel yourself competent to give evidence upon the general questions of trade?—That is not my province.

962. Nor with respect to the necessity of harbours of refuge in a naval point of view?—I have been, and continued to be, consulted by naval authorities.

963. Mr. *Liddell.*] Has your professional opinion been asked as to the eligibility of any other locality in this particular neighbourhood than Hartlepool Bay?—I am not aware of any site that is so eligible; I speak of that part of the bay between the headland of Hartlepool and Redcar; between those two points appears be the choice.

964. Have you ever professionally examined any place on the north of it; I mean taking an area of 50 miles to the north?—I have examined nothing to the north of Tynemouth.

965. Have you examined the coast between Tynemouth and Tees' mouth?—I have examined the coast between Whitby and Tynemouth.

966. Have you examined the coast between the mouth of the Tyne and the mouth of the Tees?—Yes.

967. And is it your opinion that there is an eligible locality there?—The most eligible locality appears to me to be in the bight of the bay near Hartlepool.

968. I mean eligible as a site for a harbour of that sort?—Just so.

969. Mr. *Baring.*] Can you put in a Report about St. Ives' Harbour?—I have a copy of it here.

970. Then will you be kind enough to put it in?—Yes.

Lunæ, 20° *die Julii*, 1857.

MEMBERS PRESENT:

Mr. Baring.	Mr. Lowe.
Mr. Ewart.	Mr. Macartney.
Sir Robert Ferguson.	Lord Naas.
Mr. J. H. Gurney.	Sir Frederick Smith.
Mr. Hassard.	Mr. Augustus Smith.
Lord John Hay.	Lord Adolphus Vane Tempest.
Mr. Kendall.	Mr. Wilson.
Mr. Liddell.	Mr. Clay.

JAMES WILSON, Esq., IN THE CHAIR.

Captain *Bartholomew James Sulivan*, R.N., C.B., called in; and Examined.

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

971. *Chairman.*] WHAT position do you hold in the Board of Trade?—I am professional officer; I think the actual term is Naval Member of the Board of Trade.

972. You were the successor of Admiral Beechy?—Yes.

973. Has your attention been called to the subject of harbours of refuge on the east coast?—Yes.

974. What portions of the coasts of England and Scotland are you acquainted with?—Chiefly England; the south coast; I know very little of the east coast of England, but I know nearly the whole of the coast of Scotland, having been twice round it within the last two years.

975. You were on the Commission appointed by the Treasury last year for the purpose of investigating the subject of the Scotch Fisheries, and all matters analagous to that consideration?—I was.

976. The

Capt. *B. J. Sulivan*, R.N., C.B.

20 July 1857.

976. The duties you had to perform on that Commission made you acquainted with the east coast of Scotland?—Yes, more particularly.

977. You visited the whole of the east coast, from Dunbar, northward, as far as John O'Groats, I think?—Yes, the whole; every part of it.

978. Did you go to the islands at all?—Only to Orkney and the Western Islands; not to Shetland.

979. Did it occur to you that there was any necessity for harbours of refuge on the west coast of Scotland?—None whatever for vessels; it is beautifully provided with harbours; but if you include harbours of refuge for fishing-boats, there are one or two spots on the coast of Lewis that require it as much as the east coast.

980. As harbours for sea-going ships, you think none are required?—No.

981. On the east coast of Scotland, is there any point which particularly appeared to you to be desirable as a harbour for sea-going vessels?—One, and one only; and that is the harbour of Wick.

982. You visited Dunbar, did you not?—Yes; that is a fishery harbour.

983. The utility of Dunbar Harbour is almost exclusively confined to the fisheries of the neighbouring coasts?—Yes, entirely.

984. In that respect it is a most important harbour?—Yes, probably even more important than Wick, though not having near such a number of fishing boats; the fishing boats of other parts collect there during the season, and having a railroad to England, they send off their fresh fish, and get double the price that the men do who live further north.

985. Is that in consequence of its geographical position?—Yes, and the railroad.

986. In consequence of the North British Railroad having a station close to Dunbar, and in point of fact close to the landing-place of the fish?—Yes.

987. Do you happen to remember the difference of price of the fish at that spot, as compared with the more remote parts of Scotland, at the same time?—The contracts at Wick were taken last year, in consequence of a very prosperous trade the year before, as high as 17*s.* and 18*s.* a cran, which makes a barrel of salted herrings, but at Dunbar they were getting from 30*s.* to 35*s.* at some periods, and always above 25*s.* for the same fish.

988. Is that attributable entirely to the peculiar position of Dunbar?—Yes, with reference to the railroad, and the easy access to the south of Scotland and England.

989. From the station at Dunbar, the fish are sent in great quantities to the west of Scotland and the great manufacturing districts, and also to Yorkshire and the southern manufacturing districts?—Particularly we understood to the English manufacturing districts, to the large central districts of the manufacturing counties.

990. You regard the circumstances of Dunbar Harbour as peculiarly fitted for the encouragement of the fishing on the east coast of Scotland?—Yes. The present harbour was in a very bad state when we were there, and if any accident happened to that, it would probably be the most serious blow to the fishermen in that immediate neighbourhood, and all those coming there to fish, that could possibly happen to the fishing trade of Scotland.

991. You think that the local advantages of Dunbar Harbour are so great, that the boats frequenting that harbour could well afford to pay a fair toll for the use of an improved harbour, if it is made for them?—Certainly.

992. Inasmuch as it would enable them to command at once a better market than any other spot on the coast of Scotland would?—Yes: I believe they would gladly pay double tolls rather than lose their harbour. I may mention that wherever we went, the fishermen always expressed to us their willingness to pay tolls, if harbour accommodation was provided for them; and if it was a harbour that they could enter as a refuge harbour, of course it would be far more valuable. But there is one remarkable instance of what fishermen will do for the sake of a harbour. We may take it for granted, I think, that on the east coast 1*l.* a boat is a high toll; 10*s.* a boat is perhaps as high as is usually paid; and yet in one place in the Firth of Forth, where they do not want refuge, because they have the fine firth to run up in case of danger, merely for their fishing-boats and markets, the owners of 100 fishing-boats, not being able to get any assistance from the proprietors, with the assistance of the Fishery Board, built a harbour, for which they themselves found 4,000*l.*, 1,000*l.* cash, and 3,000*l.*

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

3,000*l.* loan; and the owners of the 100 boats bound themselves to pay a tax amounting to something like 3*l.* a boat annually, and 5*s.* every man annually besides that, so that they paid off, in three or four years, 1,000*l.* of their debt.

993. This was a voluntary debt for the sake of building the harbour?—Yes; and they could only build it by raising their share of the Government grant; and those very men were using Dunbar during the season; and they told us that they would gladly pay a tax for Dunbar rather than lose the harbour; but there was one very serious objection to the principle of the tolls in their own harbour, that these very men were not allowed to tax the boats of other places, or vessels coming there to load.

994. They had no Parliamentary power to exact a toll?—No, and consequently no one assisted then towards paying for the harbour.

995. What is the name of that harbour?—Buckhaven.

996. That is on the coast of Fife?—Yes.

997. The harbour of Dunbar is equally available for the whole of that coast in the Firth of Forth, as well as the coast to the southward of Dunbar?—Yes; and the boats even come far north to fish there; boats assemble there from all parts, even Cornish boats.

998. Of course the facility of obtaining a market will naturally attract boats from all parts of the coast to those seas?—Yes, and it is a peculiarly favourable place; immediately to the west of Dunbar they catch herrings in large quantities.

999. Was there anything peculiar in the character of Buckhaven to induce the fishermen to go to so large an expense?—No; they fish more at other parts.

1000. Buckhaven has no such advantage as Dunbar in affording a facility for a ready market?—Not near; nothing to be compared with it.

1001. The nearest market would be by crossing the Firth of Forth, to Leith or Edinburgh?—Yes, by a railway running to Stirling and Glasgow; there are three or four other ports besides Dunbar, Eynemouth and Bournemouth, and some others, also on the railway or near it.

1002. As regards a harbour of refuge for that part of the sea, I suppose the Firth of Forth affords a very ample convenience of that nature for sea-going ships?—Yes.

1003. With regard to Wick; in what state is that harbour?—At present the only harbour that they have is a dry harbour at low water; it cannot be entered by boats in the smoothest weather till the tide has flowed, I think, an hour, and in heavy weather it would be dangerous until half-tide.

1004. So far as regards a harbour of refuge it is entirely useless?—It is not a harbour of refuge; in south-east gales they endeavour to run for the bay to the northward; or if the wind is to the northward they bear up for Cromarty, or anywhere to the southward.

1005. When you were there, was your attention called to a projected improvement in that harbour?—Yes.

1006. Was that proposed by the Commissioners of Wick Harbour?—Yes, and by Mr. Stephenson the engineer.

1007. Did it appear to you to be adequate for its object?—For fishing-boats and small vessels coming to load their fish, it was, I think, sufficient; but even for them it would not be a very safe harbour of refuge, because, from the position of it, it would be rather dangerous for vessels in a heavy sea, hauling up close round the head: but, as a fishing-harbour, it would answer the purpose.

1008. At all events it would be a great improvement on the present harbour?—It would be a vast improvement on the present harbour.

1009. The plan was to run out a pier close to the southward, in a north-easterly direction?—Yes, with a sweep; it was to be a rubble pier.

1010. If that pier were erected, with a very strong south-east wind, would not the waves dash over it?—Yes, but boats would never go alongside that pier; that is not intended; but if the pier stood the waves, it would be perfect as a harbour of refuge, because the waves dashing over the pier would not make any sea inside to hurt the boats, as long as they were out of the way of the fall of the sea.

1011. In point of fact, it is a breakwater?—Entirely; and nothing else.

1012. Supposing

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

1012. Supposing there was a very strong north-easterly wind, and that improvement were effected, would it not be entirely useless as a protection against a north-easterly sea coming round that head and sweeping into the harbour?—No, I think the fishing-boats would be able to run for it in almost any weather; we understood that the boats that had been lost, even in that very heavy gale in August 1849, reached the pier-head of the inner harbour in safety, and it was in endeavouring to haul round the pier-head that they were dashed to pieces to leeward of it. I think that if this improvement were made, probably they would be able to haul round it in very heavy weather.

1013. Was that gale in 1849 a north-easterly gale?—South-east; with a north-east wind they would enter the harbour more easily, and would haul better round the head: the most dangerous wind to enter that harbour, if it were made, would be a south-east wind.

1014. What occurred to yourself when you were there as being the best mode of making it a perfect harbour?—I sketched on the plan a harbour that should take in the whole bay considerably outside their pier; I drew two piers there very nearly the same as Captain Vetch has since drawn them; I did that when discussing it there, pointing out how much it was wanted, if the funds could be raised.

1015. The one going from the coast to the southward in a north-easterly direction, and the other coming to the head to the northward?—From the centre of the bay, enclosing the whole inner part of the bay.

1016. You came to that conclusion when upon the spot, without any concert with Captain Vetch?—I had not spoken to him about it, and I did not know, till some time after I returned, that Captain Vetch had suggested anything of the kind; because in our Report we could not suggest anything of the kind, and we only looked to the proposed plan; but when there, I often expressed a wish that the whole bay could be enclosed, so as to make it a harbour of refuge for ships of all classes as well.

1017. May the Committee understand, that, from your own observation on the spot, without any communication with Captain Vetch, you suggested very nearly the same plan that Captain Vetch has subsequently reported upon to the Admiralty?—Yes; I believe the piers are drawn very nearly in the same place, but I have not compared them since.

1018. The plan would be that you would have two piers with an opening between them, sufficiently large for a vessel to enter at any state of the tide?—Yes.

1019. And you think that that would make the harbour sufficiently large and deep for vessels of all sizes, including men of war?—Yes, quite so.

1020. A harbour of refuge in that situation would serve the whole of the north-east coast of Scotland, would it not?—Yes, it is in a very peculiar situation. In consequence of the Pentland Firth being so dangerous, vessels in such a south-east gale as that which happened in 1849 would only have attempted to run to the Firth at one time of the tide; if the tide was running to the eastward they dare not have attempted it; they must have kept the sea or gone on shore; it would have been certain destruction for any coasting vessel, or probably for a vessel of a very large size, to have attempted the Firth with a fair gale and an adverse tide.

1021. Can you inform the Committee as to the amount of trade that frequents those seas?—I have not been able to get any exact account of the vessels passing through, because the lighthouse dues are paid on the voyage, which include many lights in one; but the only criterion which I have, is the number of vessels which have taken refuge in Scrabster, which is immediately on the other side of the Pentland, though not as exposed as this would be; in that harbour from 1,050 to 1,100 vessels took refuge last year; that is the statement of the Northern Commissioners with reference to building a light on the entrance to Scrabster. It is stated as a reason for the light being erected, that from 1,050 to 1,100 vessels took refuge in that harbour during the year 1856.

1022. Is it not the case that merchantmen coming out of the Baltic are frequently driven into those seas?—A large portion of the Baltic trade, for the north-west coast of England, and the west of Scotland and Ireland, go through the Pentland Firth; they do not use the Caledonian Canal so much as they might; a large majority of the vessels go round to the north.

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

1023. Is it the case that vessels for the Clyde and for Liverpool go round through the Pentland Firth?—Yes, a large portion of them. We also made an inquiry into the traffic of the Caledonian Canal, and we found that a comparatively small portion of the Baltic trade goes through the Caledonian Canal; they go round in preference, even in winter; it is almost unaccountable. The only good reason that we could hear given was, that occasionally vessels were frozen up in the canal, and that gave it a bad character during the winter; and the masters declared that they would never frequent it again.

1024. Are the charges high for going through the Caledonian Canal?—No; they are so low, that we clearly ascertained, in Orkney, that even from Orkney, where they save less by the Caledonian route, the charges of the canal were more than saved by the premium of insurance being reduced, so that a vessel gained in money irrespective of the time in going through the canal.

1025. Is there much time gained?—Yes; except they are pinned by the ice, and for that purpose we recommend an ice-boat to be placed there, to keep the passage clear at all times. We clearly ascertained, what I have since found Sir Edward Parry ascertained when he was there, that the premiums of insurance are reduced in a larger proportion than the tolls on the canal by vessels going through.

1026. Then the harbour of refuge at Wick must be considered as being available, not only for the trade of the coast of Scotland, but also for any portion of the Baltic trade that traverse those seas?—Yes, for the whole that goes through the Pentland Firth.

1027. In particular states of the wind would it be the case, that vessels coming out of the Baltic, even coming southward, would be driven into those seas?—Yes, certainly.

1028. Would you regard it as a matter of great advantage to the general Baltic trade to have a harbour to which they could run in the event of a very strong south-easterly wind, no matter what part of England those vessels belong to?—If the vessels were coming south to the coast of England, I do not think that it would be of much importance, because they could run for the Firth of Forth, or even Cromarty, with a south-east gale, as easily as for Wick; it would be more especially for the trade going round through the Pentland Firth that Wick would be so important, and also the trade from Orkney and Shetland down the east coast.

1029. Have you any means of ascertaining the amount of the trade for which that harbour would be available?—No, I have not.

1030. Have you any doubt at all about that being the best spot for a harbour of refuge on the north-east coast of Scotland?—I should say that it is the only one, and it is an unusually favourable one; there is no other place where you would not have to throw off piers from a straighter shore. A harbour of refuge at Wick would be made, in proportion to its area, cheaper than at any other point on the coast in England or Scotland.

1031. Nature has done already a great deal to create a harbour at Wick?—Yes; and there is a peculiar facility in the stone; it is a very compact sandstone, stratified horizontally. It lies so easily for quarrying on both shores, that I suppose there is no place where stone could be got with such facility, and so close at hand.

1032. It must form a very important portion of the expense of a harbour, the consideration of the locality from which the stone can be got?—Yes.

1033. Do you happen to have observed that it was the defective quality of the stone at Dunbar that led to the failure of that harbour?—No, I think it was owing to the defective construction. I examined the stone carefully, and I did not see that the stone itself had given way in any place. The stones have been driven in several inches out of their line on the face of the breakwater in many places by the blow of the sea, and in other places the stones have been carried away, entirely owing to the defective construction, by the stones being placed edgeways to a rock instead of scarping the rock, and fitting them in.

1034. So far as Wick is concerned, you would have peculiar advantages in obtaining stone?—Yes, I should think unusually so; it is impossible to have it more favourable; the cliffs are nearly 70 feet high quite close to the water's edge, and the stone might be very easily quarried.

1035. The

1035. The material would be upon the spot ready to be cut out and thrown into the sea?—Yes.

1036. And with the construction of a railway, such as that used by Mr. Rendel at Holyhead, there would be every possible means for obtaining facility at the nearest point running on the railway to make that breakwater?—Certainly.

1037. Do you know the neighbourhood of Peterhead?—Yes, I have been in there.

1038. Would you say that Peterhead has any corresponding advantages compared with Wick for a harbour of refuge?—No, I should say not; there are harbours, but they are not refuge harbours, at Peterhead, and Peterhead is on a salient point of the coast; it is almost impossible for a vessel to be carried on a lee shore there; if the wind was south-east, she would have a weather shore to get under to the northward, leading into Cromarty, and if the wind was north-east, she could go off to the south-east; the neighbourhood of Peterhead is not a dangerous place; there is nothing to compel a vessel either to go in or keep off the coast, as at Wick.

1039. There is no other part of the coast of Scotland upon which it appears to you desirable to erect a harbour of refuge?—There is one little place for a fishery harbour of refuge, the most important on the coast; it is a little point to the south of Dunbar, Bournemouth; we have recommended in our Report that it should be made a fishery harbour of refuge; only for fishing-boats; it is the first port north of Berwick, it is close to the railway, it has a little pier built by the Scotch Commissioners, which only goes down to half-tide rocks, and therefore boats can only enter it at high water, and that pier has only accommodation for 20 fishing-boats; it is the first place north of Berwick, and it is in such a good position, that those 20 boats alone sent during the last year 1,000 tons of fish into England; the year before they sent only 500 tons; they doubled it in one year; they approached within half of what Dunbar sent the year before.

1040. Would not that be rather a work that would come under the legitimate functions of the Fishery Board?—Certainly, as a fishery harbour of refuge; but it is very important for this reason, that Dunbar, Eynemouth and Coldingham are to the north of it, and with northerly and north-east gales which are not good for the fishing-boats running up the Firth, they cannot make their own ports on account of the sea at the entrance; but this little port has a reef extending seaward to the north of it, and boats from those northern places, when they cannot get into their own ports, run into this little place now, though they can only get under the reef without having any artificial protection.

1041. You would recommend it to the special attention of Mr. Primrose?—Yes, we have done so.

1042. But that is in no way connected with a harbour of refuge for sea-going ships?—Not at all.

1043. Is there any part of the east coast of England to which your attention has been called?—There is the neighbourhood of the colliery ports, which is by far the most important part of the east coast.

1044. That is the coast of Durham?—Yes; from Newcastle to Whitby, that bay.

1045. Can you give the Committee any information as to the proportion of the coasting trade of the United Kingdom that belongs to that immediate vicinity?—I have a list of the vessels belonging to those ports, but then they make so many voyages in the year that I cannot give you the number of tons.

1046. Can you state the tonnage entering yearly?—We may take Newcastle, Hartlepool and Sunderland; there are two more small ports included, namely, Shields and Stockton; but they are so small, that we may almost leave them out; they are not a tenth part of the other ports.

1047. Mr. *Liddell.*] When you say that you exclude two small places, you mean that one of those small places is South Shields, not North Shields?—Yes.

1048. *Chairman.*] When you speak of Newcastle, do you include Tynemouth?—I think that the returns of Tynemouth are made from Newcastle.

1049. There are two custom-houses, one at Newcastle and one at Tynemouth?—Tynemouth is not returned separately, so that I consider it is included in Newcastle.

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

1050. Your return includes the Tyne?—Yes; all the places from the Tees to Newcastle; Newcastle, Hartlepool, Sunderland, Shields and Stockton; there are 3,733,000 tons, that is cleared outwards. I have not here those cleared inwards, because the vessels in ballast are not shown; those cleared inwards are only about a fourth or fifth part of those cleared outwards; but those vessels had all come in in ballast, so that I have only taken it outwards. The whole coasting trade of England, that is for the whole of England, is 8,162,000 tons; and those five ports alone are 3,733,000 tons, being nearly half of the whole coasting trade of England, and the part of the coast, including those ports, is only one thirty-sixth part of the whole of England.

1051. Are you speaking of England only, or of the United Kingdom?—Of England only.

1052. What is the coasting trade of the whole of the United Kingdom?—About 1,500,000 tons more; all Scotland is about 800,000 altogether, and the eastern ports 600,000; roughly, it is about 1,500,000.

1053. Within this portion of the coast which represents 1-36th part of England, very nearly one-half of the coasting trade is carried on?—Yes; and if you take foreign and coasting, which includes all the foreign trade from the large ports, still that little space represents one-third of the whole trade of England. The whole foreign trade of England is 15,796,000 tons, and of those ports, including steamers, 5,160,000 tons; the 3,733,000 which I have given, is the tonnage of sailing vessels alone.

1054. Of course those are repeated voyages?—Yes.

1055. The 15,000,000 represents the entries inwards and outwards, does not it?—No, the foreign trade one way.

1056. It represents the coasting and the foreign trade?—Yes, one way; they are all taken one way only. The export trade of the northern ports is about 2,000,000 more than the import, while London is 2,000,000 the other way; showing that about 2,000,000 tons of coal comes coastwise from the north.

[*The following Return was delivered in:*]

SAILING VESSELS cleared Outward at the Principal Coal Ports on the North-east Coast of *England*.

BRITISH.

	Sailing Vessels Coastways.		All Vessels Coastways and Foreign.	
	Vessels.	Tons.	Vessels.	Tons.
Newcastle	10,700	1,380,000	13,700	2,125,000
Hartlepool	5,600	737,000	6,600	958,000
Sunderland	11,000	1,358,000	12,500	1,664,000
Shields	1,200	122,000	1,700	221,000
Stockton	1,500	136,000	1,800	192,000
	30,000	3,733,000	36,300	5,160,000
For the whole of England		8,162,000		15,796,000

1057. In point of value, the trade of that particular part of the coast is very small compared with the large ports of London and Liverpool?—Yes, very small; the 3,733,000 tons are only sailing vessels. I find that they average not more than 130 tons; 120 in some cases, and 130 in others. Taking them at 120, they are probably not worth more than 1,500*l.* a vessel. I should think probably not that for the vessel alone, but from 1,500*l.* to 2,000*l.* would represent the value of a collier and her cargo.

1058. So far as regards the value of the cargo, there is no comparison with regard to the trade of that part of the coast, and the trade frequenting the Channel,

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

Channel, and the western coast, and Liverpool?—No, not in as large a proportion as the tonnage, but if you take the value also, you would have a far larger proportion than on any other coast of equal extent.

1059. Does a very large portion of the losses on the English coast occur at that particular spot?—I have here a return which gives, amongst other years, wrecks on the east coast for the six months of this year, which has not been published yet, and it shows an unusually large proportion at that spot. The loss this year alone between the Fern Islands and Flamborough Head, which would include the bay, where these ports are, amounts to 56 vessels totally lost in the six months, against 43 and 29 for the two previous years. For the entire year 1854, there were 101 totally lost, which was a very large year, and 111 damaged; and this year, for the first six months, there have been 56 lost and 81 damaged. The value of the cargoes of the vessels is returned as 191,000*l.* The value of the vessels lost and damaged on the east coast, of which rather more than half belongs to these ports, and the number of lives lost is given as 165 against 69 and 65 in the two previous years; so that the whole amount of loss has doubled in the year.

1060. In point of fact, the loss in the first six months of this year is nearly double the entire of the two preceding years?—It is nearly equal to the entire of the two preceding years, so that it is quadrupled, taken by the year.

1061. You say that the amount of the loss is 191,000*l.*?—Yes; but that includes the whole east coast of England; but two-thirds of the number totally lost on the east coast are lost north of Flamborough Head. There are 56 lost between Flamborough Head and the Fern Islands only, not going north to the Firth of Forth, but merely in that short bit of coast, and 81 are returned as damaged. Then from Flamborough Head to the Nore, over a much larger extent of coast, there are only 31 lost and 70 damaged, so that two-thirds are lost in that short bit of coast.

[*The following Return was delivered in:*]

RETURN of the Number of VESSELS WRECKED or DAMAGED between *Fern Islands* and the *Nore*.

YEAR.	Fern Islands to Flamborough Head inclusive.		Flamborough Head, exclusive, to the Nore.		Value, as far as can be ascertained.	Number of Lives Lost.
	Totally Lost.	Damaged.	Totally Lost.	Damaged.		
					£.	
1854 -	101	111	71	59	—	—
1855 -	29	91	50	199	131,875	65
1856 -	43	108	61	141	166,814	69
1857 - to June 30	56	81	31	70	191,349	165

Board of Trade,
20 July 1857.

1062. Do you happen to know whether there has been a very sudden expansion of the trade of those ports on the east coast since the peace?—No, I am not aware of that. I suppose that the colliery trade has not altered much.

1063. Are you not aware of the fact that since the late peace was established, the trade has taken an enormous stride from those ports?—No; in the colliery trade I should have thought that the coal sent to the Baltic during the war, for the Navy, would have made up any loss occasioned by the war.

1064. Are you not aware that there is a very large trade in timber and flax, and all those products of the Baltic to those particular ports?—I have a statement of the ports north of Hamburgh, including the Baltic; I have included Hull, because they pass so near. From Hull, there are 111,000 tons of British vessels entered from those northern ports; from Newcastle, 252,000; that is the ports from Newcastle; from Leith, 66,000; that makes 429,000 tons entered

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

entered from the Baltic, Russia, Sweden, Norway, Denmark, Prussia and Germany into those ports; cleared from those ports we have 772,000 tons British, and 649,000 Foreign, making 1,421,000 tons to theNorthern European ports.

1065. A large portion of those represent valuable cargoes of flax, timber, tallow and hemp?—Yes; that is the case with regard to the homeward vessels; in the case of the outward vessels, the cargoes would be principally coals. The imports and exports are more nearly balanced there than in the coasting trade.

1066. Of course it will be the case, that in proportion as the trade increases, the risk of collision and other damage will become greater?—Certainly; very much greater.

1067. And if there has been a very great increase of trade in the last year, that may in some measure account for the increased number of accidents in the present year?—I think we had unusually heavy gales in the early part of this year, which would account for the heavy loss. I think that the proportion would be found much the same round the coast. There were unusually heavy gales in the early part of this year,

1068. Is there any part of the east coast of England with which you are particularly acquainted?—I know the coast of Norfolk.

1069. What is your opinion about the coast of Norfolk?—It is difficult to find a place where a harbour of refuge could be made; it is a very important position, but not so important as farther north; it has such a salient angle. In the one case it is convex, and in the other it is concave.

1070. Vessels coming to the southward in that part of the coast, can make pretty easily for the Thames?—Yes; besides they have anchorage inside the banks, both at Yarmouth and Lowestoft.

1071. And going to the northward they could make for the Wash?—It is very dangerous there; they have more sea room off the Norfolk coast.

1072. It is not so dangerous on the coasts of Durham and Yorkshire?—It is probably much the same in that respect, but there is this difference, that being such a salient coast, the ships cannot be caught on a lee-shore. It is a very important position, but I am not aware of any place where a harbour of refuge could easily be made.

1073. For the coast of Norfolk there is, in particular states of the wind, the Humber, the Wash and the Thames?—Yes; and the anchorage in Yarmouth Roads and Lowestoft.

1074. It appears that on the east coast of Great Britain, the only two points which you consider at all important for harbours of refuge would be Wick in the north and Tees' Bay on the south?—I do not profess to give an opinion as to the point, because I do not know the coast; judging from the charts, I should think that there is no place but Tees' Bay where one could be made. I was not aware till I saw that plan on the wall, that a plan had been given for a harbour at Hartlepool. Some years ago I saw proposals for Redscar, but I have been examining the chart, and, judging from that alone, I should think that Hartlepool would be much the best place; I think that nature has done more towards a good harbour of refuge at Hartlepool than at Redscar.

1075. Do you express that opinion from any local knowledge?—I express that opinion merely from looking at the chart.

1076. You have not much local knowledge?—No, I have never been to either place.

1077. Are you acquainted with the south coast of England?—Yes, I know it well.

1078. Do you think that there is any necessity for any important work besides those already undertaken on the south coast?—No, I think not; I think that Portland is the only one that you can consider a harbour of refuge on the south coast.

1079. There is Plymouth Bay?—That is made.

1080. With the exception of those two you think that nothing more is required?—No.

1081. Do you know the Land's End?—Yes, I know Cornwall well.

1082. Is there any part of the coast of Cornwall where it has occurred to you to be necessary to have a harbour of refuge?—The south part of Cornwall is well supplied with harbours; there are Fowey and Falmouth, Falmouth being probably

probably the best, except Milford Haven, in England, merely looking to it as a harbour of refuge, but it is also most important from its western position.

1083. Is there any harbour on the north coast of Cornwall?—St. Ives is the only place; St. Ives and Padstow have been both mentioned as places, but Padstow is a place that I do not know; I have not been there myself; I only judge of it from the chart; St. Ives I know, and if a harbour of refuge was erected on that coast, I should think St. Ives would be much the best place; the bay there affords a position for a harbour better than any other place I know of.

1084. You have no doubt about St. Ives being the best spot, have you?—No, I should think not; the position of St. Ives also would give it advantages to the outward-bound trade taking refuge there over every other place; vessels caught in north-west gales on the coast, being outward bound, would find it a very good place of refuge.

1085. Are you acquainted much with the west coast of England?—No; the only ports that I know are Milford and Liverpool.

1086. Have you formed a very high opinion of Milford Bay?—Yes, I suppose there is no port like it in England.

1087. Do you know Holyhead Harbour?—I have never been at it; I have only seen it in passing.

1088. Has it occurred to you that the trade of the Mersey has become now inconveniently large for the convenience it affords?—I have thought so for years; my attention was rather drawn to it some years since, when I was in a merchant ship for two days in one of those severe storms with all my family on board; when I found that the port of Liverpool was such, that in a vessel of 400 tons we could not run for it fearing we should not hit the right time of tide, and that it would be certain destruction if we did not, and we were two days and nights off Holyhead and Dublin when no other vessel kept the sea. I could not persuade the captain to bear up to try and get into Cardigan Bay, and he was afraid to run for Liverpool; and from the account he gave of it, I felt strongly that it was a most dangerous place for such a trade; and when we went in, we found three vessels that had tried it lost on the banks with their masts out of the water.

1089. In a case of that sort Holyhead Harbour would be invaluable?—Yes, it would be invaluable; I was very much surprised to find that there was no good anchorage at Liverpool when in; the bottom is shingle, I believe, or it is not good holding ground; they seem to think it necessary to get into the docks at once if the weather is bad.

1090. Do you know anything of the coast of Ireland?—I have been lately round the south and west coasts.

1091. Did it occur to you that there was much necessity for artificial harbours of refuge there?—Not where I was.

1092. It is generally well furnished with natural harbours?—Yes, the east coast probably would most require artificial work.

1093. Of what part of the east coast are you speaking?—The only port that I have given much attention to is Wexford, but that is merely opening it up for its own trade, not as a harbour of refuge.

1094. By removing the sand banks?—Probably by merely dredging the channel; I do not believe that a harbour with banks outside in that way will ever be improved by any works, unless the outlay is very large.

1095. You have informed the Committee that the losses for one-half of the present year on this small part of the east coast have been close upon 200,000 *l.*?—That includes the whole east coast, from the north to the Fern Islands, and about two-thirds is contained in that small part.

1096. That would be about 130,000 *l.* in that small space?—Yes, between the Fern Islands and Flamborough Head.

1097. Have you any means of informing the Committee what would be a fair estimate of the annual loss of property, including ship and cargo, in the United Kingdom from casualties at sea?—I have not a return for the United Kingdom; the ships lost in 1856 were 419; total casualties and damaged, 734; 51 were by collisions, and 368 by wreck.

1098. How many lives were lost?—The number of lives lost were 521, but for the last five years the average of loss is 829; the last year was a peculiarly low year, both in wrecks and loss, so it is hardly fair to take it.

 1099. What

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

1099. What is the average of the same number of years for casualties?—The number of wrecks in 1852 were 958; the average is 868 wrecks, and 157 collisions.

1100. Have you any estimate of the average money value of the ships and cargoes damaged and lost?—The value is not given in the return. I have the value given for those that have taken place on that immediate part of the coast, but that includes the damage; it does not include the value of the ships actually lost, so that they are all included in one sum; it would only give the value of the damaged and lost inclusive.

1101. What is that?—£. 191,000 for 86 lost, and 150 damaged.

1102. That is for six months of the year?—Yes, for six months; that would be 15,000 *l.* a vessel for those lost, and that would be about 300,000 *l.* in the year.

1103. It has been stated before the Committee that the annual loss by shipwreck and casualties may be estimated at about 1,000,000 *l.* for the whole United Kingdom; do you think that is an over-estimate, from your examination of the subject?—No, I should have thought it was more, because we see 838 vessels were lost on an average of the last five years, and that would be very little more than 1,000 *l.* for each.

1104. You think 1,000,000 *l.* would be a low estimate?—Yes, I should have taken the colliery ports alone at 1,500 *l.*, an average for all vessels, and of course many of the wrecks are much more valuable.

1105. When you come to the south coast they are much more valuable?—I should have thought 1,500,000 *l.* would be a low estimate for the number of vessels lost.

1106. You think that 1,500,000 *l.* a year would not be an over-estimate of the loss, broadly stated, of property by shipwreck and casualty on our coasts?—I should think it a very low estimate, because that would not be 1,500 *l.* a piece for ship and cargo of those totally lost, leaving out the damaged ones; the wrecks are 837 the lowest year, which was the last year; the wrecks averaged roughly very nearly 1,000 a year, and, at 1,500 *l.* a piece, that would be 1,500,000 *l.*; and I think that that is a very low estimate to take the vessels and cargo at, even allowing a large proportion for the vessels in ballast.

1107. The principle upon which you maintain lighthouses on the coast is by charging a toll to the vessels which use them?—Which pass them, or which are liable to pass them, even if they are rather out of their track. Vessels going to the north of Europe are charged with lights on the east coast of England to a certain extent, even though they may have a fair wind, and go straight away from them.

1108. And that charge is made upon the principle that lighthouses are established for the use of the ships navigating the particular seas where they are established, and therefore being to them an actual money value in the shape of security?—Yes.

1109. The principle upon which passing tolls have hitherto been regulated has been rather indiscriminate, and without regard to the ships that used or were likely to be benefited by those harbours upon which passing tolls have been charged?—Yes; and that has very properly caused a very strong feeling against them; for instance, vessels have paid for ports that they could not possibly use from their draught of water.

1110. The feeling against passing tolls, therefore, has been created by the injustice of vessels being charged with those tolls, which could not by any possibility avail themselves of the harbour for which they are so charged?—Certainly, I think so; I do not think, as a rule, that any parties connected with the shipping interest object to pay anything which they get a fair value for.

1111. Would it be in accordance with the same principle that you now charge for lighthouses, if a small charge were exacted from vessels passing those parts of the coast whereon a harbour of refuge might be established?—I think all vessels would be glad to pay, for the sake of getting a harbour of refuge: that is merely an opinion; I do not know the opinions of men in the trade.

1112. What is the principle by which you now determine what vessels shall pay for certain lights?—The lights that they pass or might pass, I think; it is an old scale drawn up by the Trinity House and by the other Light Boards; the fixing of those does not rest entirely with the Board of Trade.

1113. The Trinity House determine what vessels clearing out from particular ports

ports to other ports shall be charged with particular lights?—Yes, they are charged with every light they can possibly pass upon that route. For instance, vessels bound from Plymouth to the Baltic would pay for all the English lights on the east and south coast; I think as far north as Flamborough Head. I am not quite sure as to the exact limit, but it is in that way.

1114. It rests with the discretion of the Trinity House to determine what vessels shall pay for particular lights?—Yes.

1115. And, as far as you know, the principle adopted by the Trinity House in determining that, is that vessels shall pay for lights which they either do or may use in their ordinary route?—Yes, I think so, certainly.

1116. If the same principle were adopted with regard to harbours of refuge, can you see any distinction between the two to create a grievance on the part of the shipowners?—I think it would be a very difficult point to draw the line between vessels that passed them, so that there could be no doubt, and those that went in another direction, and there might be a difference of opinion whether they were likely to avail themselves of them or not.

1117. Would it be more difficult in the case of a harbour of refuge than in the case of a light?—I think perhaps the principle used in the light might be applied to it. My own idea is, rather than drawing a line, that supposing a toll was desirable for a good harbour of refuge, vessels coming to ports in its immediate neighbourhood, when they could get no shelter in bad weather, as a matter of course, to or from those ports, those vessels might pay a passing toll for it; and vessels passing from one part of the coast of England or Scotland to another passing the harbour might justly pay for it a passing toll, which would of course give them the right of entry to the harbour without any additional toll. Then in the case of vessels leaving and going across the North Sea that might possibly sometimes use it, but yet could hardly be said to pass it, a different toll might be levied upon them; they might pay a much higher toll for every time they used it.

1118. With regard to vessels sailing from the Thames to the north of Scotland, or to any of the intermediate ports north of Newcastle, there could be no doubt in that case that a harbour of refuge established in the Tees Bay would be strictly available for such traffic?—Certainly they must pass it.

1119. Therefore there could be no doubt that it would be available to the north and the south for that particular traffic?—None whatever.

1120. With regard to vessels sailing from the Thames to the Baltic, or the coast of Sweden, might not such a harbour of refuge upon that coast be available for vessels going in that direction?—Yes, for sailing vessels particularly, but not steamers; and yet it would be difficult to draw the line in fixing the toll that steamers should be exempted, and that sailing vessels should pay, and you could hardly say the steamers going nearly a straight course would pass it; they would in going to Scotland, but not in going to the Baltic from London.

1121. Take vessels coming from the Baltic, through the Pentland Frith, to the west coast, the harbour of Wick, if there were one established, would it be ordinarily available for those vessels?—Yes, decidedly; and they might fairly be charged a toll for it.

1122. That would be in the direct course?—Yes, it would be in the direct course.

1123. It would be, therefore, a question of degree and fine discrimination what vessels should pay a toll for any particular harbour of refuge that might be established?—Yes, I think so.

1124. And it must be determined upon somewhat similar grounds to those now adopted for the payment of light dues?—Yes, except that I think it would be better to draw a broad line, that vessels should pay on passing, in order to prevent any dispute upon that point, which would be sure to arise; all vessels going from Hull to ports on the Continent, or to London, would be to the southward of it; it is possible that a sailing vessel might be driven back, and use that harbour, but not generally; in all those cases I think that a harbour toll might be levied, and that a very much higher rate should be paid by vessels entering the harbour, which were exempt from the passing toll.

 1125. Is

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

1125. Is there a general scale of light-dues, or are they uniform?—No.

1126. Are the charges for any given light uniform to all vessels having to pay it, or is there a scale in proportion to the use?—No, it is uniform; the coasting vessels pay one-eighth only of the vessels going foreign, but it is the same per ton to all vessels that are charged.

1127. You suggested just now, I think, that in the case of vessels going from the Thames to the Baltic, or to Archangel, or to any other northern port, inasmuch as those vessels would be less likely to use a harbour of refuge on the east coast, a smaller uniform toll might be charged to those vessels than to coasting vessels, which would be more likely to use it?—No, I would exempt those vessels that could not be said to directly pass the port; but I would charge them much higher when they used the harbour.

1128. I understood you to suggest the former also?—No, I did not.

1129. Do you see any objection to a smaller charge being made to vessels going to the Continent, than to vessels going coastwise?—I think it would be very difficult to draw the line there, because sailing vessels would be very much more likely to use it going to and from the Baltic, than steamers.

1130. I do not speak of a line being drawn between sailing vessels and steamers, but I speak of a distinction between vessels going to the Continent, and vessels going to some part of our own coast?—I think it would be difficult.

1131. I do not speak of a graduated toll to different ports, but only of a distinction between vessels going to some part of our own coast, and vessels going to the Continent; there would be no difficulty in drawing that distinction, would there?—You could easily draw it, but I do not see how you would arrive at that difference of toll; it would be very difficult to fix a toll that would be fair to both.

1132. Would it be possible to fix any toll with reference to coasting vessels, which would be exactly just as between different ports?—I think so; I think that all vessels that must pass in their track might pay a small passing toll.

1133. Is it not quite clear that the amount of advantage which a harbour would give, would vary in some smaller or greater degree in the different ports to which it was available?—If vessels passed that harbour of refuge, then the toll might fairly be charged equally to all wherever they were going to.

1134. Is it not the fact, that in all these cases you must take a sort of average; you cannot go into a minute calculation of the precise advantage which a ship derives from the particular harbour or the particular light?—Certainly; and that is the reason why I think it would be so difficult to fix a toll upon vessels going across; I think it would be better to charge them only when going into the harbour.

1135. My questions have no reference to a scale of charges either for one class of ships or another, but to a general distinction between the utility to the one class, taken as a class, and to the other class, taken as a class; would it not be the case, that a vessel coming from the Thames to Newcastle, to Hartlepool, to Stockton, or any of those immediate ports, would have a greater advantage from a harbour established there, inasmach as they must keep in towards the land to make for the port immediately for which it is destined, than for a vessel going to Leith that could keep out more at sea, and avoid the immediate danger of the coast in many states of the wind?—I think with a heavy gale on shore, which is the only time that the one vessel would use it; the other vessel would probably be glad to run for it too; but certainly with a south-east gale the vessel would run on for her port at Leith, while she must run into that harbour of refuge, if bound to Newcastle.

1136. Those are distinctions which, in point of practice, cannot be made?—I think between one coasting vessel and another, you can only make the distinction of their going by.

1137. There is no distinction in the charge for lights?—No, you must draw the line somewhere; and I think it would have to be vessels that did not pass it and vessels that did.

1138. Take the harbour of refuge in Tees Bay, all vessels going through the German Ocean would pass it at a greater or less distance?—A vessel is as near her port when she is off the coast of Norfolk as she is in Tees Bay, going to the Baltic,

Baltic, or very nearly so; she literally does not pass it; she leaves it at right angles to her course.

1139. But the entrance to the Baltic is further north considerably than Tees Bay?—Yes; but it is so far to the eastward that I could not say that a vessel was passing Tees Bay if she was bound to the Baltic from any port south of it.

1140. Still she is going through a sea, which in a strong south-easterly wind might make it desirable to run for the harbour of refuge in Tees Bay?—I could not say myself that she could be brought under a passing toll equally; I think you would have to exempt all vessels going to the Baltic from ports south of the harbour.

1141. You have suggested that in the event of vessels going to the Continent occasionally using the harbour of refuge, it would be better to charge a higher toll when they entered the harbour and used it?—Yes; all vessels which could not be brought under a passing toll, I would charge a higher toll when they entered the harbour.

1142. Do you not think that it would be a great advantage to vessels using or passing a harbour of refuge that there should be a uniform small toll charged upon all rather than a toll charged for the use of the harbour when it was used?—Decidedly; those that often passed it, because the toll might prevent their using it. In the case of a collier, for instance, they try to sail very cheaply, and where the owners complain of every pound that the captain spends, he would be induced to try to keep the sea rather than pay the toll and try the harbour; but if he had to pay a small toll every time, he would have every inducement to run in.

1143. You would recommend that a uniform toll should be charged of a small amount, and that no toll should be charged for the use of the harbour?—Decidedly.

1144. As the object of a harbour of refuge, in a national point of view, would be for the purpose of saving national property and lives, you think that every possible inducement should be given to shipowners and captains, without let or hinderance?—Decidedly.

1145. And therefore, taking that view of the case, you would say that, under no circumstances should any toll be charged for the use of the harbour when it is used?—Unless in the case of vessels going from southern ports to the Baltic. You could not charge a toll on English vessels going from France to the Baltic; all that class of vessels might fairly be charged when they enter.

1146. Where it was possible to charge a small and much diminished toll, somewhat in proportion to the diminished chance of the harbour being used, would not the same principle rather point to that small uniform charge being made than for a large charge being made for the use of the harbour?—Yes; and perhaps to sailing vessels it might be more easily applied; but I think if you attempted to put a small toll on steamers going from London to the Baltic for a port there, the owners of the vessels would cry out against it very much; they would say, very naturally, that their vessels were not likely once in a dozen voyages to see it.

1147. In the case of sailing vessels there would be more chance?—In the case of sailing vessels there would be more chance coming back, not in going.

1148. Supposing there were a very small tonnage charge placed upon coasting vessels literally passing such a harbour, and a charge, perhaps very much smaller, say one-half, placed on vessels going to the Continent that might use it, would such a very minute uniform charge not be preferable to a large occasional charge when the vessels had to use the harbour, and which the larger it was of course would form a greater inducement for the captain to avoid incurring it?—I cannot think that you would be able to arrive at a passing toll for vessels so little likely to use it.

1149. Speaking of the harbour of refuge generally, the probability of its use would be a question of degree?—Yes, entirely.

1150. Might not the details of that nature be very safely left to the Board of Trade to determine from time to time what rates should be charged, and what vessels should be subject to those rates?—Yes; I think there could be no doubt about the passing toll; but it would be difficult to decide without consulting some of the parties interested in it.

1151. Of course the Board of Trade never would come to any decision

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

without taking proper steps to ascertain the justice of the policy which they might adopt, but after all it would be a matter of detail to be left to some department to execute?—Yes, quite so; and a minor part too. The principal thing would be the toll. The toll would really not probably prove to be a tax on those vessels at all, for I have no doubt that it would be such a small per centage on what they now pay for insurance, that the having a safe harbour under their lee, would reduce the insurance in an equal proportion with the toll. I believe a great deal more; I think I am speaking quite on the safe side. I have no doubt that the per centage of losses which regulates the premium of insurance would decrease in that immediate neighbourhood; so that the per centage of insurance paid would come down more than the toll. Roughly calculating, if a penny a ton was paid by all the trade passing that harbour, taking the trade from those five ports alone, about 500,000 tons from Newcastle may go northward; on the other hand, an equal quantity of the Scotch trade passes from Scotland to London; and they would fairly pay, so that while perhaps the 500,000 tons might be exempted, it would be made up by the Scotch trade; so that the trade of those ports we may fairly take at a passing toll of 1 *d.* per ton each way, which would be 1 *l.* a voyage for each collier, by which you would get something like 40,000 *l.* annually; that is only 1 *s.* 6 *d.* per cent. on the value of the vessels, supposing them to be worth 1,500 *l.* cargo and all. Now, I suppose the insurance must be one per cent. on each voyage.

1152. Are you aware that it is the habit of shipowners in Sunderland and the neighbouring ports to have what they call mutual insurances?—Yes; I am keeping them in view; the vessels are nearly all insured in mutual insurance companies, and therefore the per centage of loss shows really the premium that they pay.

1153. I think the principle upon which those insurances are made is that of a mutual contribution amongst all the shipowners to make good any loss that takes place?—Yes; therefore, the per centage paid is really the per centage of premium, because there is no profit made; and I should suppose that 1 *s.* 6 *d.* per cent., which 1 *d.* a ton a voyage would be, would be such a trifling per centage upon what they must pay for their losses, that a harbour of refuge would save them a great deal more than they would pay for the toll.

1154. In point of fact, it would be no additional charge whatever to the shipping?—No; I think the harbour would be eventually a gain to them, even though a toll was paid for it.

1155. Do not you think that it would be a very fair application of those tolls to reimburse the public at large for any outlay required for such a harbour?—Yes; that is quite the system upon which that little fishery harbour that I mentioned was founded; they laid out the money, and then, by the tollage which they levy, they will gradually acquire the harbour for their own benefit; and if these ports, years ago, had made a harbour at their own expense, they would have saved the money long ago.

1156. You think that if they had borrowed a sum of money at the beginning of the century, and constructed a harbour, they might have saved the money by this time to have paid for it, and have had the harbour?—Yes.

1157. You are aware that there is a very large coal trade now carried on by screw steamers?—Yes.

1158. And also that there are a very large number of paddle-wheel steamers frequenting those ports?—Yes.

1159. Do you think that any distinction could be made between sailing vessels and screw steamers or other steamers, or would you make a general average of the whole?—A sailing vessel of course would be more likely to benefit by the harbour, but a steamer, having the most valuable cargo, it would be difficult to draw the line between them; I have not considered the question.

1160. If you make a charge upon a vessel you do it upon the tonnage?—Yes.

1161. That does not at all represent, therefore, the risk which is covered by particular vessels?—Not at all.

1162. That must depend upon the value of the cargo?—Yes, that must depend upon the value of the cargo.

1163. Therefore, as steamers have more valuable cargoes, and perhaps incur less risk, it would not be unfair that they should pay the same rate per ton?—No,

No, because they would be only paying on the tonnage of their vessel, the collier would be paying on the value of the vessel, while his cargo did not represent one-third of it, while the steamer would pay much less on the value of what she had on board in proportion.

1164. With regard to Wick Harbour, do you happen to know what rates are levied upon the boats there?—I am not quite sure of the proportion when we were there; I think something like 8*s.* for hauling a boat up for the winter; each boat pays something for hauling up on the ground.

1165. Is it self-supporting?—I think they have a sum accumulated.

1166. They have a sum of 40,000*l.* or 45,000*l.* accumulated?—Yes, but they have land as well which they let out one fee; the expense of the harbour cannot be much, but the actual expense of the harbour would be more than paid by the fishing boats.

1167. So far as regards fishing purposes only, you think it a fair principle that the fishing boats should, by the charges which they pay, maintain the harbour that is applied to their particular purposes?—If you mean merely the management of the harbour, and keeping it in order, I should say, yes.

1168. And, as far as regards the larger purposes of a harbour of refuge, you are of opinion that it would be a very just principle to levy a toll upon seagoing vessels which were likely, from their destination, to use those harbours, upon the same principle that light dues are paid for vessels navigating the seas where lighthouses are placed?—Certainly, I think so.

1169. And you see no reason why the larger vessels should object to that principle?—No; I think they would always gladly pay if the fishermen are any criterion; the only thing against it is the system of insurance; the underwriters would certainly be glad that a vessel should pay always, and I doubt whether some little difference in premium might not be made; but while men insure their vessels they will never care about harbours of refuge; it is too often the case, that when vessels are insured they do not care whether they hear of them again or not.

1170. You have no doubt whatever that it would be much better to levy a small uniform toll upon all vessels, than to rely upon a larger toll for vessels using those harbours?—Most decidedly; because I am quite sure that the masters are so afraid of their owners in laying out a penny, that they would be afraid of being turned out of their vessel from not being able to prove that the weather actually forced them in; if there was a toll of 2*l.* or 3*l.* when they used the harbour, masters would be so afraid of using it that they would often go by and lose their vessel, rather than pay it.

1171. Mr. *Macartney.*] You seem to have paid great attention to the district of Wick, and the coast, and the necessity of a refuge harbour; having designed in your own mind what has been carried out to a certain extent by Captain Vetch, can you name any approximate estimate in round numbers within 20,000*l.*, of what would make such a harbour of refuge?—I made a rough estimate; taking Mr. Stephenson's guide for the present pier, and thinking of the extra depth of water, I thought you would not make that Wick Harbour under 250,000*l.*, but then I had not the slightest engineering knowledge; I have said, in speaking of it, 250,000*l.*; but I was glad to find, when a good estimate was made, that I was too high; that is only a rough estimate.

1172. Lord *John Hay.*] Which pier?—The pier Mr. Stephenson proposed making for the minor scheme; judging by the expense of making that when I was drawing the piers for the deeper water, I thought 250,000*l.* would make a fine harbour here, but I have had no experience whatever in building these harbours.

1173. Mr. *Macartney.*] Upon the subject of passing tolls for harbours of refuge to cover the outlay, hitherto the principle has been to construct harbours of refuge without cost to the persons using them, but suppose that that principle now was altered for the purpose of a passing toll, do you not think that it must be to a certain extent by districts that those tolls should be levied. From this east coast, applications have been made from time to time to the Government for a harbour of refuge in some place on the north-east coast, particularly by the coal trade. Of course, looking for it, they would contemplate contributing to it; would it not be the proper and best mode to prevent the evils of what

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

are called the passing tolls at this moment that a certain district should be allotted to each, and that all the coasting trade within that range passing it should have very small tolls levied as the light dues are before going out, and that the larger foreign-going vessels and vessels from other parts of the state not within that range should only pay upon entry?—That is very nearly what I think.

1174. Would it not be much more acceptable to the trade generally of the country, and the shipping interest, than a general charge; suppose in the port of Galway in Ireland, and in the port of Glasgow in the west of Scotland, ships going to America were to contribute passing tolls for perhaps a harbour of refuge made upon the east coast?—I never supposed such a thing for a moment, that a vessel starting from any portion of the coast away from those harbours would ever pay.

1175. Where would you draw the line?—Vessels passing the harbour; for instance, the whole of the vessels from Newcastle, Tynemouth, Sunderland, Seaham, Hartlepool and Stockton, all those vessels bound to London.

1176. And hailing from those ports?—Sailing from them; if a Liverpool vessel went round there, and took a cargo of coals to London, she should pay just as much as the Newcastle vessels.

1177. Where would you levy the tolls?—Either in Newcastle or London; there would not be the slightest difficulty in levying the toll; and then again, any vessel bound to one of those ports, whether from foreign or coastwise, as she might make those ports in a gale of wind, when with a bar-harbour she could not enter, it would be quite fair that she should pay a passing toll, as she could enter if she required it.

1178. All vessels hailing from London and making for the Baltic you would put under toll for that harbour?—No, I distinctly said I would not.

1179. How would you draw the distinction of distance?—If a vessel sailed, from either one of those ports in the immediate neighbourhood of the harbour for the Baltic, and came back from the Baltic to one of those ports, I would charge a passing toll decidedly, because she comes back to the immediate neighbourhood of the harbour of refuge, when there is no other port she can run into in a gale of wind.

1180. Take a vessel out of Newcastle, going to the Baltic, she probably would go through the Pentland Frith, if the wind suited her?—No, not at all.

1181. She does not pay, belonging to the harbour, or at least any harbour, or within the range of what I call the coasting trade; she goes out, and she is not in the original category of paying a small toll, sailing from that port, and she never uses the harbour, and you then charge her a passing toll?—I would charge all vessels bound from those ports, whether they went foreign or coastwise, because you may say that the harbour of refuge is built for those particular ports; there is now no place where they can take refuge from a gale of wind, therefore any vessel bound to or from those ports is more likely to use it than any other vessel, therefore she should be the first to pay. Between Flamborough Head and the Fern Lights there are only those colliery ports, and Whitby included.

1182. How would you provide for paying the expenses of the harbour at Wick?—All vessels passing the Pentland Frith might certainly pay, because they pass quite close to it, whether foreign or coasting. Then, all vessels passing from the Orkney and the Shetlands to and from the east coast anywhere, or into the Caledonian Canal, it would be quite under their lee the whole way; and then all other vessels that could not be said to pass it on their voyage might pay a much higher toll whenever they entered it.

1183. Would not the having a higher toll for vessels using it occasionally, still hold out an inducement to the captain to avoid making use of it?—Yes; but I hardly see how you can charge those vessels a passing toll.

1184. I only speak to the words "higher tolls;" if you do not bring down those tolls to vessels that ought to use the harbour, and will not use it, because of saving the money, would it not be well that those vessels should be induced to go in?—Yes; but I am afraid there would be great difficulty in drawing that line.

1185. You mentioned that you were acquainted with Liverpool?—Merely from once being off it those two days, and entering it.

1186. You

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

1186. You made use of an expression which, as far as my knowledge goes, though I have not used the port in trade, it is, I think, incorrect; that the river was not good holding ground; that was the first time I ever heard it so stated; and you said also that it was shingle?—My informant was the master of the vessel, a Liverpool captain, who had sailed a good deal from it; and he spoke of the danger, even if they got in, of missing the tide, to get into the docks; and if they did not get into the docks, he spoke of the danger of riding out in the channel till another tide came.

1187. That is not in the river?—I speak of that open space where the steamers run across from the docks to the opposite shore abreast of Liverpool, abreast of the docks.

1188. Therefore you cannot say as to your own knowledge how far Holyhead, in its present arrangement, or its proposed completion, should be considered a fair and perfect harbour of refuge for the trade of the port of Liverpool?—I certainly can speak of it, because it is in the immediate neighbourhood of the whole passing trade, and vessels are constantly caught in gales, and that is the only safe port to approach when they dare not run into the bay of Liverpool; no doubt it is a very important port for a harbour of refuge. I was in that position that I was very anxious to induce the master of the ship in which I was to run for Liverpool in the gale. He was one of the most superior men I ever met, as a merchant captain; and gave me as his reasons why he dare not do it, the disadvantages of the port; that he must hit the time for entering; and he mentioned the danger of lying outside the dock at anchor in consequence of the bad holding ground; and he actually kept the sea two days under great danger rather than risk it. And this gale caught us immediately off the rocks north of Holyhead, with about 30 vessels round us, all in fine weather but the moment before, with a great deal of sail set; and I have never seen such a scene in my life during the 30 years I have been at sea as in that half-hour. The sails were flying in every direction. Some of the vessels were in very great danger, and nearly every one but ourselves, in a very few hours, had borne up and run right down the Irish Channel; we were the only one that kept our ground.

1189. How long ago was that?—In September 1851. It was a very memorable gale, and did a great deal of damage on the coast: we were only a few miles from Holyhead, and had there been a harbour at Holyhead the whole of those vessels would probably have borne up, and run into Holyhead.

1190. Mr. *Ewart.*] According to your plan there would be no difficulty in levying tolls; you would do it in the same way as it is done by lighthouses?—Yes.

1191. And you are opposed to any charge made for vessels using that harbour of refuge?—Yes, except vessels so unlikely to use it that you could not charge them fairly a passing toll, and those when they occasionally use it should pay an entry toll.

1192. Do you not think that the amount to be derived from those tolls would be so very small, that it would be better to make your harbour of refuge perfectly free, so as to induce persons to run into it. If a vessel which is not properly passing it has to run for it, do you not think it would be better to have no charge at all?—Supposing, for instance, a collier from Newcastle to London paid 1 *l.* a voyage, making eight or ten voyages in the year, she might not use the harbour more than once or twice in the year in the winter, and if she saw a fine vessel bound to the Baltic from London, a vessel damaged, use that harbour without paying a farthing passing toll, or a farthing for the use of the harbour, then I think those people supporting the harbour by passing tolls would complain very much.

1193. It would be a very rare circumstance a vessel running into a harbour of refuge not passing it in her proper course?—Sailing vessels from the Baltic in southerly gales would be so very apt to set in towards that coast that they would use it; steamers would not, but sailing vessels and even foreigners would occasionally use it; but you could only charge them when they did use it. I do not see how you could bring them under a passing toll; if all your own vessels paid, it would be only fair to charge foreigners.

1194. I think that vessels using the harbour should pay passing tolls, but that there should be no charge whatever for any vessel coming into the harbour?—I think you must throw the harbour open to all, and make it a Government thing, and not even charge passing tolls, or you must make every vessel

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

pay in some way; you must either have it free to all, or all must pay towards it in some way.

1195. Mr. *Augustus Smith.*] You have before you a paper of wrecks which you referred to; at page 15 there is the average of five years; the average appeared to be about 1,000, roughly; you must deduct from that the collisions. What I want to ascertain is, that supposing a harbour of refuge were to exist, what proportion of the wrecks we might suppose would be prevented?—This little table I have made out for that particular coast, represents vessels lost between those heads; there are 56 vessels actually lost the first six months of this year in that very bay in which this harbour of refuge might be made; you can hardly doubt that nearly all those might have been saved; they must have been lost upon a lee shore, and nearly every one might have run for the harbour of refuge.

1196. First of all, you must deduct the collisions?—Yes; that would leave it about 900.

1197. The collisions have increased; how do you account for that?—The Board of Trade have only recently obtained good returns.

1198. The first three years the number has been 57, 73 and 94; you consider the returns are imperfect?—Yes; because the Mercantile Marine Act only passed in 1854, so that the machinery is only just coming into use, but it is getting better every day.

1199. Are the returns for wrecks to be depended upon?—Yes, I think so.

1200. The number of collisions last year are 316, having risen from 247 to 316?—Yes; I cannot suppose for a moment that those three lower numbers represent the collisions which actually occurred; I believe that the more perfect returns, and the inquiries into them, give rise to the greater number; then steamers are getting more numerous, which always increase collisions.

1201. Do steamers increase collision?—Yes; because the sailing vessels keep up their number, and so many more steamers running among them increase the collisions.

1202. But where there is a steamer there is much greater facility of her getting out of the way?—A large proportion of the collisions are from steamers running into sailing vessels.

1203. Does not that show very great neglect on the part of masters of steamers?—No; it shows the great want of what we ought to have had long ago, viz., a system of lights for sailing vessels as well as for steamers. I was on a Committee last year upon the subject, and we strongly recommended that that should be carried out; and I have no doubt that in two years after it is carried out, those collisions will be reduced one-half. It rests with the Admiralty at present.

1204. Taking the average of wrecks at 1,025, we may deduct 200 for collisions, taking the table at page 15?—That shows the actual number of wrecks. You may leave collisions out altogether. That 868 shows the actual number of wrecks, which may be roughly taken at 900 for this year.

1205. What proportion of those, may it be calculated, would have been prevented had there been a harbour of refuge; a great many of those wrecks took place from causes totally independent of whether there were a harbour of refuge or not?—Yes.

1206. What proportion would that give?—On that immediate coast the wrecks apparently would not exceed from 70 to 100.

1207. Calculated upon that average, what is the whole number of wrecks?—The whole number of wrecks would not bear upon a harbour of refuge here; it applies only to that immediate vicinity.

1208. Eight hundred and sixty-eight wrecks have taken place?—Yes.

1209. And a great many of them took place from causes having nothing to do with a harbour of refuge?—Yes.

1210. What proportion do you suppose of those would be independent of those causes?—I can hardly say, because on many parts of the coast they have natural harbours, and yet there are numerous wrecks.

1211. At page 9 you will see five columns; "calm weather; light air; light breezes; gentle breezes; moderate breezes." We may consider that wrecks taking place under those circumstances would have no relation to harbours of refuge?—No, certainly not; up to 4 and 5.

1212. That

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

1212. That would be 246; then 5 and 6 are "fresh breeze; strong breeze?" —Yes; 6 would be approaching bad weather; no good sea-going vessel ought to mind it in the least, but a light collier would, particularly on the east coast.

1213. That would give 294, and then there would be 246; then the next heads, 7, 8 and 9, "moderate gales?"—Those would be all gales of wind for a collier.

1214. That would give 613; that is not much more than half?—Yes, rather more than half.

1215. Five ninths?—With reference to that particular part of the coast I think you may consider that the wrecks there are generally caused by stress of weather; the men are so much in the habit of running those voyages that they are very experienced, and know the coast well, and they manage, many of them, to keep their vessels safe in a very wonderful way, considering what they have to go through, and those numerous wrecks off there I think you would find, are caused by stress of wind, but in other parts the largest number are caused by want of use of the lead.

1216. Therefore the number in other ports must be very small indeed?—I do not know of any other place on the coast of England that can be compared with it; many wrecks on the other parts of the coast are caused by vessels making the land in thick weather, or at night without the use of the lead; running their vessels on shore through carelessness.

1217. Still we might reckon that if we had harbours of refuge everywhere, very nearly half of those wrecks would take place?—Yes.

1218. Therefore, it is not right to calculate, when you reckon 1,000,000 *l.* of vessels and cargoes lost, that if you had harbours of refuge more than half that value would be saved?—I did not make any allusion to the general value of the whole wrecks of the kingdom; I had this table made with reference to this particular part of the coast.

1219. Have you ever particularly examined Peterhead?—I have not examined it with reference to a harbour; I was all over the piers at the fishing station, and I was there the other day in the Trinity yacht. There is a very good place for a harbour on the south side of the bay, where there are some rocks which would aid it very much; and it is a place where, if the trade were very great, would be well worth any person's making a harbour; but I do not think it has any claim like Wick to be made a harbour of refuge by Government.

1220. A much larger number of vessels must pass near that head than by Wick through the Pentland Firth?—Some few of the vessels bound from the south would go that way, but very few; any that pass Peterhead to go to the north, except a few that go to Cromarty, would be bound for the Pentland Firth or Orkney.

1221. Taking the amount of shipping at Peterhead itself, what is the amount of shipping there?—Peterhead and Fraserburgh are the two.

1222. Peterhead has 11,000 tons and 51 vessels?—Yes; that is very small, comparatively.

1223. And then Banff has 1,200?—Peterhead entered 30,000 tons.

1224. How much Wick?—Wick alone entered 65,000 tons, double that of Peterhead; I have had them tabulated purposely from our books.

1225. Does that include fishing-boats?—No; it is "entered and cleared at the Custom-house."

1226. Have you the number of vessels registered, because the registered vessels only give 20?—It is the grand exporting port to Germany for herrings. Wick is 65,000 tons; 66,000 nearly, and cleared out 60,000; that was to show what portion of the Scotch trade would possibly pass a harbour of refuge to the south; this is coastwise only; it does not include foreign trade.

1227. Could it be shown what number of vessels passed by Wick, and what number of vessels passed by Peterhead?—No, that is difficult to show, because each light has not a separate account kept of it. A vessel leaving Plymouth for a certain place north, pays a number of lights.

1228. Between Peterhead and Wick the wind generally comes in from the south to the east?—No; the tide runs 10 knots in the Pentland Firth, and many miles to the eastward of the Firth in the land, so that they can only make Orkney by crossing this dangerous race, which is, I suppose, by far the most dangerous race on the coast of England.

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

1229. You said you had examined Redscar?—Only the plans which were published some years ago; and I watched with great interest the controversy about Redscar, in hopes something would be done.

1230. Did it come at all to your notice that it was very likely to silt up by the sand brought down the Tees?—Redscar, I think, would be less likely to silt up by sand brought down the Tees, than by the shingle travelling along the coast; that is the great danger in all those harbours of refuge.

1231. In which direction does the shingle travel?—That is an engineering question.

1232. That on the south coast travels eastward?—Yes, eastward.

1233. Is it a shingle coast?—Yes, I think so, some part of it; but the travelling of the silt is the difficulty, as an engineering question.

1234. Are you acquainted with the coast of Cornwall, between St. Ives and the British Channel?—Only by passing in a steamer; I have examined the chart; I have had a good deal to do with some inquiries at Padstow; so that I know it thoroughly by the charts.

1235. Supposing there was a harbour of refuge at St. Ives, and a vessel was not able to get there, where must she go?—For a north-west gale the shore there is so straight, that a vessel is in a very dangerous position; if she cannot get into Padstow, she must run round the land.

1236. Supposing she cannot get round?—Then she must run for Lundy Island, or under the Mumbles Head; there are two or three anchorages in the Bristol Channel, the Mumbles Head and the King Roads.

1237. How many miles is that?—One hundred and fifty miles.

1238. What sort of advantage has Lundy in the way of shelter?—I do not know; I have never been there.

1239. Lord *John Hay*.] Is there any place that you would recommend for a harbour of refuge on the south-west coast of Scotland?—Most decidedly not.

1240. Are there a great many wrecks there?—Yes; but there is scarcely a port of the world better provided with harbours than the south-west coast of Scotland. I cannot fancy anything to warrant a Government outlay of money there, because nature has done so much for it.

1241. You said that Scrabster was of great use as a harbour of refuge?—Yes, it is used very much by vessels passing through the Pentland.

1242. Do you think it advisable that assistance should be given to increase the works there?—No; I think it affords a very good anchorage to vessels that take refuge there; there are works going on there merely for landing; it would require a distinct pier, quite new. The works that are going on would be quite useless for a harbour of refuge; and it is almost a land-locked corner, which affords at present a good harbour of refuge.

1243. Is it quite open?—Vessels coming round the point are nearly shut in; if you include Orkney they are quite shut in, and a strong tide running east and west outside always acts as a breakwater; even with a northerly wind there would not be much sea in Scrabster Roads, with such a tide as there is of eight or ten knots outside.

1244. You said that Dunbar required increased harbour accommodation, in consequence of its having the advantage of a large fishing trade, which is the result of the advantage which it also possesses of having a railway; do you not think that Wick requires a harbour to a greater extent, as the whole of its produce is carried away by vessels, and it has no land carriage?—I am not at all comparing the two places; the one is merely accommodation for fishing-boats; Wick is a much more important thing as a harbour of refuge for vessels and for men-of-war in the event of a war. The two things cannot be compared. Wick is far more important than Dunbar, Dunbar is merely locally important to the fishing people of that neighbourhood.

1245. But Wick is of national importance?—Wick is of national importance.

1246. You rather approved of the harbour proposed to be constructed on the plans of the Fishery Society?—Yes; that it would be a great deal better than that which they have now, but very far short of the advantage to be derived by making a larger harbour.

1247. Did I rightly understand you to say, that you considered that in a gale of wind from the south-east vessels, such as those which frequent Wick for the purpose of carrying away the produce of the herring fishery, would be able during bad weather to go into the harbour proposed to be constructed by the

Fishery

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

Fishery Society?—It would be a very dangerous harbour in a south-east gale; at present they have nothing, therefore anything would be better than the present; but there would be only 15 feet of water round the head, and about 18 or 19 inside, and they would have in a south-east gale to drop their anchors on the lee-side, very near the pier of the old harbour.

1248. Have you ever seen Wick during a heavy gale?—No; it was quite fine when I was there.

1249. Are you not aware that the sea breaks right across outside of the line of the Fishery Society's proposed harbour?—I do not know that, but I said I had no doubt it would be so; that there would be a breaking sea outside of the entrance; I should not fear but what fishing boats would run through that, but for a vessel to haul up close round the pier with a scant wind, I think it is doubtful if she would fetch into the harbour well.

1250. Do you think that during bad weather, with gales from the south-east, or east south-east, that a packet steamer, such as they use on that coast, would be able to go into the harbour proposed by the Fishery Society?—When the sea was breaking outside the entrance a steamer would not be able to take it; there would be too much risk of the sea taking her quarter and causing her to strike the pier head; but it would be only in a very heavy gale that the sea would break. Therefore, probably, all but four or five days in a year a steamer would be able to enter that harbour; but during such a heavy gale as that boats were wrecked in, and so many lives lost in 1849, I should think a steamer would not be safe there, while she would in the larger harbour proposed.

1251. There is no accommodation at Wick at the present moment to enable a steamer to coal?—None whatever.

1252. Is there any part of the coast from the Thames to Orkney where a steamer could coal excepting Cromarty?—No; only Cromarty and Inverness, in the Murray Firth, at all times of the tide.

1253. What draught of water is there in Inverness?—There is plenty of water; I think four or five fathoms in the entrance, through the outer bar at Fort George.

1254. Inverness and Cromarty are entirely out of the route?—Yes; but Inverness is so inferior to Cromarty, that no vessel would think of going into it; Cromarty is such a beautiful harbour.

1255. But they are entirely out of the route of vessels?—Yes; and that would cause great delay if vessels went there to coal.

1256. In case of our being at war with a maritime power, would not Wick be a very important place as a naval station, for the purpose of enabling vessels to lie there, watching the north of Scotland; and also as a place where vessels might run to for the purpose of protection against weather or to save their coal, supposing a fleet was cruising in the North Sea?—It would be the only place north of the Firth of Forth—the only place that would be at all useful for vessels; the other vessels might use Orkney and Shetland, but on the coast of Scotland that would be the only place. Another advantage of Wick would be, that a vessel would be ready for either coast; it is the most important position as a naval station, in the event of war, north of Edinburgh.

1257. During the old war you are aware that Longhope was much used?—Yes.

1258. Is there not an objection to Longhope, on account of its being on the other side of the Firth?—Yes, on account of the tide, with a south-east gale it would be very dangerous for them to cross.

1259. A statement was made the other day by a witness, about the size of the Scotch boats, that they were not more than 15 tons; do you believe they are generally 15 tons?—Fifteen tons is a large boat rather for that coast; the boats have be enincreasing in size and improving in build, I think, during the last few years very much, since Captain Washington's Report of 1849. I had his plans with me, and I saw a much finer class of boat than he represented them to be.

1260. How long is it since you had an opportunity of judging of the dimensions of the boats?—A few months ago I had a photograph with the dimensions of boats sent me, as I was interested in the question, and the boats are, I think, 40 feet in length. If you calculate the builders' tonnage, the whole length and breadth, as you would measure a yacht, they would measure a high tonnage; but if you take their capacity, I think they would not be above 15 tons. They

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

have great beam, and that is an overhanging beam in a great measure, and that gives them a nominal tonnage; but if you take their capacity, I think the tonnage of the majority of the Scotch boats is not more than 10 tons; 10 to 15; some few extra fine boats, into which they put seven men instead of five, might run up to 20 tons.

1261. Have you any idea of what the whole value of the boats at Wick is?—There are, roughly, 1,000 boats fishing from Wick and the neighbourhood of Wick. There were about 600 going out from Wick alone last year when we were there, but there are about 1,000 which belong to Wick, because they fish from the little coves, north and south; in bad weather they make for Wick; in reality they do not all fish at Wick, they fish in the Wick district, and those 1,000 boats would cost about 85 *l.* a boat, and I think the nets are about 200 *l.* more as far as I recollect now. In our report, I think we give all those particulars. That would make 285 *l.* now, for one of the new boats, so that taking the smaller boats of former years, old and new together, I suppose you could take the value of them as exceeding 200 *l.*, that would be, from 200,000 *l.* to 250,000 *l.*, the value of the Wick boats, allowing for the old boats. I know the boats are paid 85 *l.* for, besides the nets, and the nets would cost 200 *l.* to replace them, if they were lost in a gale; to replace all the boats and nets would certainly cost 250,000 *l.*, or thereabouts, but I suppose the value of them is above 200,000 *l.*

1262. You said that in your opinion a breakwater, such as is proposed, would cost 250,000 *l.*?—I thought so before I had seen any estimate; I heard that a much lower estimate had since been made, and I thought it out of the question; but when I saw the estimate made by the engineer of the Portland breakwater, where they are making the cheapest that has been made, and where the new system has been brought in, made by convict labour, I had no doubt that his estimate would be much more to be relied on.

1263. Are you aware that two or three gentlemen accustomed to that sort of business have made estimates for this breakwater, and that all of them are considerably under 200,000 *l.*?—No, I only know of Captain Veitch; Captain Veitch thought, when he proposed it, that the harbour could be made for 70,000 *l.*, and I thought it would take three times that sum.

1264. Are you not aware of Mr. Coode's estimate?—He is the gentleman I alluded to as making Portland breakwater.

1265. And Captain Veitch?—Yes.

1266. And Mr. Stephenson?—Yes, and I should place great confidence in that, because I know in the other one the contractors offered to take the work at 1,000 *l.* less than his estimate.

1267. From the peculiar facilities which the vicinity of Wick Harbour affords for making a breakwater, you do not imagine that the estimate would be likely to be exceeded?—I think it would be impossible to find a place where there are so many advantages, and where piers of the same size could be made at so small an expense.

1268. You said something about the Caledonian Canal, and the prospect of some improvement which you suggested, inducing vessels to pass there oftener than they have done hitherto; supposing the wind should be from the south-east, and vessels coming from the Baltic were going to make use of the Caledonian Canal, and the wind should take them to the northward, in such a position that they would not be able to fetch the mouth of the canal, there would be no place for them to run to?—They must run now, if the wind comes from the south-east. At present they have only to risk the Pentland Firth; but they would all make use of the harbour of Wick, if it existed.

1269. Although the improvement which you have suggested might induce vessels to go through the Caledonian Canal frequently during the bad season of the year, they would take advantage of Wick Harbour, supposing it existed?—Yes; and the Baltic trade comes home generally at a bad season, in September and October, and even November.

1270. With regard to the east coast of England, where the numerous wrecks take place, and where there is so much trade, do you not think that in addition to the harbour of refuge you would propose to make at Hartlepool, it would be advisable to have some accommodation more to the northward, so that vessels caught by a gale of wind from the south-east might, if they did not fetch to windward at Hartlepool, be able to anchor for a short time, until the wind changed

Capt. *B. J. Sulivan*, R. N., C. B.

changed, at a place somewhat nearer Hartlepool than the Firth of Forth?—They have the Fern Islands at present.

1271. Might not a harbour of refuge be erected on the Fern Islands?—It certainly would not be worth the erection of another harbour, merely for that; if the wind was so far southward they could run to the northward safely for this other port. They could also keep the sea, and they could stand off so easily, that the vessels would not be in danger.

1272. It would not be worth while to make a harbour there expressly for that purpose?—No, not a second one.

1273. Have you considered the propriety of constructing a harbour of refuge off Beachy Head?—I have heard it mentioned occasionally.

1274. You are aware that it was recommended strongly some years back?—Yes; but principally as a national defence.

1275. And not at all with reference to a harbour of refuge?—As Dover harbour is constructed, and they have also the Downs to run back to, I do not think that there is an immediate call for a harbour at that place.

1276. There are some rocks at the mouth of Falmouth harbour, are there not?—One rock, right in the entrance.

1277. Do you think it would be a very important thing that that should be removed, and the harbour made more easy of access?—No, I should rather be inclined to keep that rock; there is a pyramid upon it; I have never heard of a vessel being wrecked on it; and as it is right in the centre of the harbour, and has a good passage on each side, and is above water, and as the principal anchorage is exactly inside it, I would retain it; and I believe it helps to make it such a safe harbour in southerly winds, because there is no harbour naturally on the south coast of England so safe. In that November gale of 1824, every vessel that was at anchor inside the breakwater went on shore, and every soul perished in some; and every vessel at Spithead went ashore, or into Portsmouth harbour, the gale being from south south-west to south south-east; it was a very bad gale for Falmouth, and though there were 200 outward-bound vessels in the harbour, not one was lost, and only one drove, and she held on to an Indiaman and was saved.

1278. Do you think that a light ought to be placed upon that rock?—No; there is a light at the entrance which vessels keep close to, and so get away from the rock; as the lighthouse is on the East Head, which is a bold one, and the vessels pass close to it, that keeps them clear of the rock; it acts as a small breakwater. The great want of Falmouth is, something in the shallow harbour, the inner harbour, which has been gradually shallowing up for some years; it must eventually, I suppose, become a packet station, and therefore something must be done there; but that is a thing that the trade will itself lead to.

1279. What do you propose to do at Liverpool; I do not think anything can be done; my own idea has been, that as steam trade increases, now that railways are open, Milford must take such a portion of the trade away from Liverpool, that it will prevent Liverpool being more crowded. Milford is such a superior port, that I think it must take a portion of the trade away, or rather prevent the trade of Liverpool going on increasing.

1280. Have you thought of the propriety of having any shelter constructed on the Isle of Man?—I do not know the Isle of Man at all; I have never been there.

1281. You know the charts of it, of course?—Yes, many of the other charts I have been particularly studying, but I have not had any reason for looking at this particularly.

1282. You are able, from looking at a chart, I presume, to form as accurate an opinion almost as if you saw the place?—Nearly.

1283. Therefore the sight of a chart is almost as good as a sight of the place?—Yes, if I know the direction of the winds and other things, very nearly.

1284. Do you know anything of the coast of Ireland?—I have been round the north, and the west, and the south coasts of Ireland.

1285. Near Lough Foyle?—I merely passed the head of it. There are so many good harbours round there, that I cannot think that any artificial works are necessary; there may be local works for the trade, or deepening channels.

1286. Is not the absence of accommodation one reason for a great deal of the trade of Liverpool going south instead of north of Ireland?—No, I think not. There have been applications recently for pilots to be established on those

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

ports for the sake of vessels seeking to enter; but judging from the charts, I should say it is so provided with ports of shelter that no vessels need fear going that way, because there is an entrance to Londonderry and Lough Foyle, and others.

1287. Do you know the south of Ireland?—Only west of Cork, and I have been only once there.

1288. Mr. *Hassard.*] You made a remark, I think, that the effect of a passing toll might deter the owners of ships who insured; that they might object to it?—Yes.

1289. That will not apply to the shipping on the north-east coast, where there is a system of mutual insurance?—No; the underwriters would be in favour of the toll there.

1290. You said, that in the case of a vessel going out of Newcastle to the Baltic, you would not charge her with a passing toll?—Yes; I would consider her as passing, going outwards even; because she is so liable by a gale to be driven back, and as she has no port that she can make but that which she is driven to, I would charge her the same as if she went from Newcastle to London. She could only use the port where she was driven back to; she might be driven back by the gale to the Forth.

1291. I understood you to say, that you would not charge her outward but inward?—I would charge her outward and inward equally.

1292. Do you think that a harbour toll would deter a foreign vessel from entering a harbour of refuge in the same ratio that it would coasters, the foreign vessels being generally of a much greater value?—No; I think that in the case of any vessels in danger, though not paying a passing toll, if they happened to be driven near this harbour by a gale, it would not prevent their going in. If they were free of the harbour they might hesitate less about going in, but any vessel in danger, probably, would go in if driven near the harbour.

1293. It would not have the same deterring effect upon a vessel of that class as upon a coaster?—No; because the toll would be so trifling, compared with the value of the vessel, that that would not be likely.

1294. Are not works going on at present at the mouth of the Tyne?—Local works.

1295. Will they not be available, to a certain extent, as a harbour of refuge?—I do not believe that they will ever enable vessels to run for it at low water in a gale of wind.

1296. You know the coast about the Land's End?—Yes.

1297. Would not the existence of a harbour of refuge at St. Ives, perhaps, prevent the wrecks that have occurred to the southward?—Most decidedly.

1298. Many of those wrecks that take place at sea might, perhaps, be avoided by that?—Many of those vessels might have been saved if there had been a harbour at St. Ives.

1299. Is not the bar at Wexford outside the headland?—Yes.

1300. And if there were a channel cut there, would there not be a very heavy sea still running?—Yes; the difficulty is to keep a passage through those bars, that would not be closed by any gale; the inner passage, which runs close to the point, would be protected more than the other; it lies so much inside the banks that it would be much more difficult for the sea to get up there; that is the safest channel.

1301. Have you been to Wexford lately?—No; I have never been there.

1302. Captain Vetch spoke of the Hantoon Channel silting up now; do you know that?—I have recently become one of the Wexford Harbour Commissioners, and we have just ordered a dredging vessel to be built, purposely to keep those channels open; we have a sum of money to lay out from the money paid by the Wexford Company, and the first outlay has been the ordering of a dredging vessel.

1303. Are you not aware of the fact whether the Hantoon Channel has silted up?—I know that the depth is reduced from eight feet to five; there is now only five feet of water where there used to be eight.

1304. What is the nature of it?—Shingle.

1305. Do you know anything of the coast west of that?—No.

1306. Mr. *Ferguson.*] Supposing the Government were to lay out a sum of money in a harbour of refuge both in Tees Bay and in Wick, do you not think that

that there would be some justice in charging a small toll, so as to raise a sum of money, from any vessel sailing from the east coast of England?—If a vessel left London and went to the south, I could not think it just to charge her; or if a vessel left Lynn and went to the south, or left Hull and went south, you could not charge her.

1307. But all vessels to the north of Tees Bay, or wherever the harbour might be erected, might be liable to a small toll, supposing the Government undertook a harbour of refuge, both for the south and for the north?—Yes; all vessels southward of that port down to the northward, and for vessels from Scotland bound to the southward.

1308. You are one of the Fishery Commissioners?—Yes.

1309. You have mentioned the harbour of Buckhaven; I presume you have visited also and made yourself acquainted with a number of small harbours similar to that on the coast?—Yes, very many; but none erected under those circumstances.

1310. From your intercourse with the fishermen, do you believe that in many other localities they would be willing to make local exertions to pay the interest of the money expended if the Government were ready to advance it?—I believe so; and in our report we have recommended that they should be assisted by loans on the principle of the drainage system, to be returned in that way.

1311. What proportion of the money have the Fishery Board been in the habit of advancing?—The Fishery Board advance money if the local parties advance one-third or one-fourth, as the Government give two-thirds or three-fourths.

1312. What proportion did they advance in the case of Buckhaven?—I think about 4,000*l.*, and the harbour cost 16,000*l.*

1313. *Chairman.*] Who advanced the fourth?—The fishermen advanced a fourth, and the Government three-fourths.

1314. Mr. *Ferguson.*] What was the original estimate for the harbour?—First, 12,000*l.*, but it was increased up to 16,000*l.* by the foundation sinking at the head of the pier; the commencement was this: the fishermen first collected 500*l.* in cash amongst themselves, 5*l.* per boat for the 100 boats, and they came to the Fishery Board with the 500*l.*, and said, "We will give you 500*l.* if you will help us to make the harbour." They were told that they must at least try and get a couple of thousand pounds. They went away to try to raise more money; a survey was then made, and I think it was found that about 12,000*l.* was necessary, so that they had to raise 3,000*l.*; but as the works progressed, it was found that the rocks did not extend out to where the pier was intended to be, and they had a very bad foundation for the pier head; and that increased the expense another 3,000*l.* or 4,000*l.*, of which the fishermen had to get another 1,000*l.*, and they raised it by the tradesmen of the place becoming bond to assist them, they giving security to the tradesmen, and the tradesmen giving security to the bank.

1315. Was not it bad engineering in not ascertaining what the harbour head was to be founded upon?—I think, if I recollect rightly, they asked to have it extended, to try and get a little deeper water; I think it was built by the Stephensons, because it has been built since Mr. Stephenson superseded Mr. Mitchell.

1316. You have stated that the Dunbar Harbour failed on account of bad engineering?—Yes.

1317. Was that Mr. Stephenson's?—No, it was built by Mr. Mitchell.

1318. Under the Fishery Board?—Yes, before Mr. Stephenson had anything to do with it.

1319. Lord *Adolphus Vane Tempest.*] I think you said, that on account of the large amount of shipping, and the trade on the east coast on the five ports of Stockton-on-Tees, Newcastle, Shields, Sunderland and Hartlepool, and the large number of casualties that take place on that coast, a harbour of refuge is imperatively necessary to be formed there?—Yes, far more than any other part of the United Kingdom.

1320. You also made a calculation of the proportion of wrecks that take place on that part of the coast?—Yes.

1321. Have you made a calculation in regard to 1853?—No, I have not gone back to that year.

 1322. What

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

1322. What calculation is that?—This shows the number of vessels wrecked on that immediate part of the coast since 1854.

1323. You stated, in answer to one of the questions of the Chairman, that great national advantage would ensue from the formation of a harbour of refuge on that coast by the saving of property that would take place by such a work?—Yes.

1324. If that is the case, do not you think that that constitutes a claim on the Government in aid of a sum for the formation of that work?—Certainly.

1325. So far as I understand you, you would advise that a proportion of it should be obtained by a grant from the Government, and a proportion paid by a toll upon vessels using that harbour of refuge?—I have not given any evidence on that point; I have merely given evidence that a toll would pay; but whether the Government should do the work, or whether the local interests should do it, I have not given any opinion about, because there are two questions: one, whether the Government ought to make it as a national work, and throw it open to the trade; and the other, whether the trade themselves, for their own benefit, ought to pay the expenses of it, either by a toll or by raising the money, and those are points that I have not gone into yet at all, in evidence.

1326. I understood you to lay some stress on the national advantage to be derived from the formation of a harbour of refuge on that part of the coast?—Yes; the national advantage being the saving of life and property, the saving of property might be more fairly referred to the parties interested, and the saving of life would be more the Government portion of the work.

1327. Looking to the national advantage to be derived, do you not think that it constitutes a claim on the Government for some aid for such a work as that alluded to on the east coast?—I think that the Government aid would be more regulated by the use of the place for national purposes; but for the trade and the saving of property, I think it fairly belongs to the people themselves.

1328. Are you acquainted with the system pursued at Portland?—I have never been there, but I know the exact way.

1329. Is not that entirely constructed by the Government, and no charges made at all upon shipping taking refuge there?—Decidedly. But I have no doubt that the construction of Portland has been considered far more necessary for the defences of the country and the fleet in time of war than merely as a harbour of refuge; I look at Portland as a national harbour.

1330. I believe there are a great number of merchant ships that take refuge in Portland Harbour?—Yes, in a westerly gale, vessels used to anchor under the heads there very much in westerly winds.

1331. And pay nothing. I do not know whether they are to pay or not when the harbour is made.

1332. Considering the number of ships that use Portland without paying, and looking to your evidence, that there would be a national advantage in constructing a harbour of refuge on the east coast, it would be only fair that a proportion of the expense of such a work should be advanced by the Government?—The question as to national advantage was only put to me with regard to Wick; keeping a squadron there in the event of a war; now I could not say that with that view this harbour is so important, because they have Hull on the south, Grimsby just to the southward of it, and Leith on the north, so that for national purposes, for the use of large steamers, in the event of war, I should not myself think the outlay for a harbour there justified. I have looked entirely to the loss of our merchant vessels, and the loss of property to the trade, in advocating a harbour on that coast, not for national purposes. The question was not put to me on national grounds.

1333. Do you limit your opinion of the national purposes of a harbour of refuge, entirely to the question of its being available for naval purposes?—Certainly, as far as the public are interested, I look principally to its advantages for naval purposes; it is to the shipping trade of those ports, and to the passing trade that I look, which, with the exception of the lives lost, is entirely a question of the class interest, viz., the shipping.

1334. Do you not consider that it would be immensely to the advantage of the country that a reduction should take place in the enormous amount of the loss of life and property that takes place on the east coast?—Yes, certainly; but those who immediately suffer by the loss are the parties principally interested.

The

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

The owner of each ship that is lost certainly is the one that would feel the interest and the benefit of having a harbour of refuge; I would not call it a national harbour of refuge like Dover and Portland; I look upon them as national harbours for military defences, in a great measure, or for the coast defences, and for our fleets, in the event of a war. I do not think that Portland breakwater would ever have been built merely for the trade; it would not have had one-fourth of the claim for trade that a harbour at Tees' Bay would have.

1335. Under those circumstances, if a grant of public money is to be based entirely upon the question whether the harbour is available for national purposes, would not the shipping on any coast where such harbours are available for national purposes have been constructed have a most unfair advantage over the shipping on another part of the coast which might be more dangerous, but where in your opinion, or the opinion of the Government, the harbours, if made, would not be available for national purposes?—Yes; in the same way that on a part of the coast where nature has given them a harbour they have a great advantage. In the same way, if Government makes a harbour for national purposes, and it is used for trade purposes also, all that part of the trade that goes that way benefits by it; but I do not think that would quite bear on a harbour made exclusively, which I think this would be, for the passing trade.

1336. Would it not be an advisable thing to have a harbour that Her Majesty's cruisers could go into between the Firth of Forth and the Humber?—Yes, there would be some advantage, but as there is a good coaling port at Grimsby for all the men-of-war a little south of it, and a little north comparatively in Firth of Forth, I do not think that the Government would ever, for national purposes, make a harbour there, or lay out a sixpence; that is my idea; I do not know what might be thought necessary, but I cannot think that, for Government or national purposes, a harbour would ever be built upon that north-east coast; it is for the trade of the coast alone that it is necessary.

1337. As far as I understand you, the loss of property and life on that coast does not concern the Government, except in a philanthropic point of view, and you consider that no harbour has a claim to Government aid, otherwise than for national purposes?—It is quite a new thing for me to go into this subject, and I would not like to say that Government should give no assistance to trade; but I certainly think that the parties principally interested are those for whom the harbour is built, and for their purses in fact; it is entirely for the property of those men, except in the case of life saved by it.

1338. It is your opinion, so far as you have considered the question, that those interested in the matter should repay the Government the whole of the expenditure that would take place?—I do not know what arrangements might be made to make this harbour.

1339. Do you think that the whole of the expenditure (supposing that a harbour should be constructed) for the construction of that harbour should be locally leviable on the trade and shipping of the place, or that the trade and shipping have a fair claim on the Government for a certain grant of money?—I think that the harbour might in some small proportion be considered nationally useful, but I should not like, particularly after thinking of it for so short a time, to give an opinion as to what proportion that would be; but I confess that I consider the national advantages of the harbour trifling compared to the local value.

1340. You think it would be fair that the Government should pay a proportion, but you are not prepared to say what?—If you measure it by the national importance of the harbour, I think it would be a very small proportion.

1341. I believe you have given evidence, that you think that the income derived from this harbour of refuge, if constructed, should be leviable entirely by a system of passing tolls?—That is, if it is decided to levy tolls upon it at all. I have not given an opinion at all, either for or against the Government throwing the harbour open; if tolls are levied, the question is, How shall they be levied most justly?

1342. You think it would be a better system to raise the revenue, if raised at all, by a system of passing tolls, than by making only those ships pay a toll that use the harbour of refuge?—Yes, for the coasting trade, decidedly, I think so.

1343. I believe you base that view upon the feeling that, if it was only

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

collected from those that use the harbour of refuge, a great many ships would be deterred from entering it, on purpose to save the expense of the toll?—Yes.

1344. Do you think that that would operate considerably?—I do.

1345. Do you think that a man with a tolerably valuable cargo would be deterred in a gale of wind by the payment of the toll?—Yes, I positively do; I know that masters of vessels are afraid to enter ports where they would have to pay a pilot, for fear the owner should object to the payment; and I believe, as I said before, it is owing to the system of insurance. I believe, if the master were the owner of the property, he would not, perhaps, hesitate to go in, but I believe the master of a vessel does hesitate to incur the slightest expense where he is likely to have his owner complaining of the outlay; and I am quite sure, that vessels are forced out of harbour in the face of gales of wind, when it is not safe, by the owner; and if the owner would do that, is it not likely that he would complain of the vessel going into harbour under the same circumstances?

1346. As far as I understand you, the annual cost is to be levied upon shipping trading north of Hull, and no ship trading south of Hull, except to those ports, would be liable for a passing toll?—That is only an opinion of mine; vessels from Hull, bound northwards, would certainly pay, but vessels bound southwards, I should think would not; my own view would be, that vessels from Hull and south of it, bound to the southward, could hardly be brought fairly under a passing toll, but that they would come under the class of vessels paying a larger sum when they used the harbour.

1347. There would be a certain number of vessels that might have occasion to use that harbour, exceptional to those from which you proposed that the whole revenue should be derived?—Not the whole revenue, because if other vessels used it they would pay towards it.

1348. But you would make them pay a much larger toll?—Yes; for instance, if a vessel pay on every voyage passing, say a pound a voyage, eight or ten times a year, they may not use the harbour more than twice, I would put upon the other vessels using it, 4 *l.* or 5 *l.*; I am not saying that that should be the sum, but supposing 1 *l.* to be paid for the voyages up and down by a passing vessel, 10 *s.* each way, and she paid that every voyage she made, I think it would be quite fair to charge 4 *l.* or 5 *l.* to a vessel not paying any passing toll, but which was driven into the harbour by stress of weather.

1349. Do you think that that increase would justify the injustice of that ship having been exempted from the passing toll all the year round?—As she would never pass the place I do not see how you could charge her a passing toll.

1350. Suppose a ship is caught in stress of weather, and goes into Hartlepool Harbour of Refuge, and saves the ship and valuable cargo, ought not that ship to have paid (say that the harbour has been constructed for some years) a passing toll as well as those ships trading on that coast?—No; suppose a vessel bound to Hamburg or the Baltic from the south of England or France, you could hardly charge her a passing toll; but if she met with bad weather in the North Sea, she might go into that harbour, and then she should pay.

1351. Do not you think that that would be one of the inconveniences of levying an income by a system of passing tolls?—I think you must look to this harbour principally for a particular trade, which trade suffers such losses on that coast; you must look to it only for that trade, and the thing is, if any toll is to be levied, how can it be best levied upon that trade for the interests of that trade; and the best way I think would be a small passing toll rather than a large one for each time the vessels entered the harbour.

1352. So much upon the tonnage burthen of the ship?—Yes; because I believe it would prevent their using it, if they only paid each time they entered it, and it would not diminish the wrecks in the same ratio as in the other case.

1353. You have stated that 1 *d.* a ton would amount to about 1 *l.* a voyage, and that the ships make about 12 voyages in a year; is not it the case that there is a new feature rising in the coal trade, that large screw steamers are being built of 700, and as much as 1,200 tons, that will make as many as four voyages a month?—Yes, there are such screw vessels, I know, building; they will not make four voyages a month, I think; but I think that the tax levied on small sailing vessels, where they have a larger crew in proportion to their size, might fairly

fairly be levied on steamers; they would be taking a larger quantity of coals; they profess at least do it, at a smaller expense.

1354. Would not that tax, which you propose, press very heavily upon them, owing to the increased amount of voyages that this screw steamer would take?—She would be making the freight of that increased number of voyages, and saving the insurance of that increased number of voyages. It would all be in the same ratio. She pays her insurance now in proportion to the number of voyages, and she makes her profit on the freight in proportion to the number of voyages; and therefore it would be only fair that she should pay for the advantage of this harbour.

1355. She would pay at a comparatively increased rate as compared with sailing vessels?—Only because she would make more voyages; and if a sailing vessel had great luck and made two voyages in a month, which they do sometimes, she would pay double.

1356. With regard to the coal trade on the east coast, the sea-borne coal, great competition exists between sea and railway-borne coal?—Yes.

1357. And every penny put either upon the tonnage and freight of the coal renders that competition with regard to the sea-borne coal still more difficult than some people imagine it at present?—Most decidedly.

1358. Then this 1 *d.* a ton on the burthen of the ship would operate as increasing the freight of the sea-borne coal, and as, of course, the reduction of freight is an element in reducing the price of the article in London, it would not be advisable to have a fixed tonnage upon the shipped coal, which would make that competition more difficult?—If the harbour reduces the loss of vessels it will reduce the insurance paid for the loss; and I believe that the reduced risk will more than make up for the toll paid; your argument would only apply if the same losses are met with yearly as now, and then the harbour would be useless.

1359. You think that the reduction in the insurance would make it up?—Yes; I should not like myself to see a toll levied that would not be fully made up by what, I believe, the harbour would save the ship-owners in yearly loss; and I believe if the Government would make an agreement with them to take the average of a number of years' wrecks now, and the same after this harbour is built, and receive the full value of the difference towards paying for the harbour, they would get a much larger sum than you would ever get by levying a toll upon it.

1360. That opinion would go to the principle that the Government should make the harbour, and repay themselves from the tolls?—Yes; I have said before, that I believe if the parties interested had made the harbour long ago, they would have saved the expense by saving the loss; and if the Government does it, it would be a saving to the people who now lose their vessels, by a far greater sum than any sum that could be levied upon them in the way of tolls.

1361. Have you seen the estimate for making the harbour?—I roughly thought that it would not be made under 1,000,000 *l.*

1362. The Government would have much greater facilities for undertaking it than the trade?—Yes; the Government should build it, and the trade repay them.

1363. The effect of your answer was rather to show that the trade themselves ought to have formed this harbour before?—No; I think they might have done so with advantage to themselves; but it is a large outlay for the trade to make.

1364. You stated in your evidence that it was more to the advantage of sailing colliers than it was to steamers, that they should have this harbour of refuge constructed?—Yes; I think so, because they are more likely to go on shore.

1365. Is it not the case that steamers have a greater necessity for a harbour of refuge, on account of the greater difficulty that they have of entering into tidal rivers and harbours, by drawing so much more water than the sailing colliers?—That depends upon the draught of water; it would be the same between a large vessel and a small one if the draught of water was greater, whether it was a steamer or not; now I think that the steamers on the coast do not draw more water; they build them shallow, and they are of such great length that they do not draw much more water; but generally speaking, I have no doubt that those colliers of 500 and 600 tons, that first started the steam

Capt. *B. J. Sulivan*, R. N., C. B

20 July 1857.

coal trade, do not draw more water than a deep-laden wooden collier; they could not have entered those ports if they had.

1366. *Chairman.*] Do you mean two vessels of the same tonnage?—No; with the same tonnage, of course the steamer will draw much less.

1367. Lord *Adolphus Vane Tempest.*] As you stated that colliers would derive more advantage from a harbour of refuge than screw steamers, is not it the case that screw steamers on the east coast are more interested in having a harbour of refuge than colliers even, on account of the difficulty that they have of entering the present tidal rivers and harbours from the depth and the greater breadth of water?—No; I think not; I think that sailing vessels still would be more likely to find the advantage of a harbour than steamers; so much so, that I even doubt whether steamers would not object to paying so large a tonnage duty as the sailing vessels, though I think they have advantages in other ways to make up for that.

1368. Is a south-east gale likely to arise so suddenly, as to endanger any vessel between Hartlepool Head and Newcastle; is not the distance too short to admit of it?—No; I think that no vessel bound from Newcastle to the southward would sail if it was blowing from the south-east, and if she ever put back to use this harbour she would be in the position of a vessel bound from the southward, and she would make the harbour of refuge in the same case both ways.

1369. Lord *Naas.*] Have there been any charges made in harbours of refuge hitherto?—I do not know.

1370. You do not know whether charges have been made for vessels taking refuge in Kingstown Harbour?—No; I do not know anything about the tolls at Kingstown, but I should suppose that at Kingstown they do pay tolls: I do not know.

1371. You have stated that you thought that Milford would very likely eventually take off a great deal of the trade of Liverpool, in consequence of the railway?—Yes, it will prevent the trade of Liverpool going on increasing; Liverpool is getting, I think, overcrowded, and it would be desirable to direct a portion of the trade to Milford.

1372. Do you think that will occur at Holyhead at all?—No, I think not, because I think that Milford has all the advantages of Holyhead; and, for a commercial port, it has greater advantages; Holyhead would be a harbour of refuge for vessels that were still going to Liverpool, but Milford I look upon, not as a harbour of refuge merely for Liverpool or any part of the coast, but as a port to which vessels would go as a commercial port.

1373. If a convenience is made at Holyhead for unloading ships, do you not think that a portion of the American trade would find it a convenience to unload at Holyhead?—Yes, probably many would; but Milford is so admirably situated for all vessels bound round Cape Clear, and they save so many risks by going there, that I would not put Holyhead in comparison with Milford as a port if I had to select the two. As a commercial port Holyhead has one advantage; it is a little nearer the manufacturing districts; but London is nearer to Milford, and Milford is nearer to all the western manufacturing districts, and the Pottery districts are nearer to it; but the steamers landing their mails, and the light goods that they carry at Milford, would give them a very great advantage over Liverpool; I suppose that passengers landing at Milford would be in London before they would be in Liverpool, going up the Channel.

1374. Do you think that, in the event of Holyhead being found useful as a harbour of refuge for vessels running in and out of Liverpool, it would be fair to charge the Liverpool trade a small toll for the maintenance of the harbour?—I think it would.

1375. Do you know whether the shipping interest generally would consider it a fair claim; do you think that they would object to it?—I think that all additional safety for which a toll is paid is so sure to lessen the premiums of insurance, and so be returned to them in that way, that they would not object.

1376. With regard to the east coast, have you ever spoken to any of the large shipowners upon the east coast? Supposing a harbour of refuge were made at Tees' Bay, as has been spoken of, do you think that the shipping interests would be

be willing to pay for it?—I cannot say at all, for I have never spoken to any one upon the subject; this question of toll has been quite new to me; I have only been thinking of it the last day or two.

1377. You never heard it proposed, upon the part of the shipping interest themselves, that a harbour of refuge, used entirely for purposes of trade, should be in part supported by a toll?—No.

1378. Do you not think the fear of paying the toll would deter captains from using the harbour, and do you not think that they would find it very difficult sometimes to persuade their owners that there was a necessity for it?—Yes, certainly; I have myself been told by captains of the difficulties that they have on that point, that they are afraid to lay out a shilling for fear that the owner would object; I know it would have a very serious effect in restraining vessels from using the harbour, except as a last resource.

1379. Do you not think that there are numerous instances of ships being lost because the captains are afraid of the small expense attending the use of the harbour?—Yes, I have no doubt of it; as long as owners will force their ships to sea, no matter what the weather is, because they are insured, you may be assured that they would object to their entering the harbour in bad weather.

1380. You think that a passing toll over the district would be a fairer toll?—I do not say a fairer toll; but the harbour would be more likely to be used.

1381. For instance, Holyhead would be used in 99 cases out of 100 by vessels either running to Liverpool or some other port in the neighbourhood?—Yes.

1382. The instance of another ship going into a harbour of that kind would be very rare?—Holyhead has a particular advantage; whatever trade Milford may take, the large mass of the trade will always go from Liverpool, particularly sailing vessels of large draught of water, which come out of Liverpool at particular times of the tide, and they come down to Holyhead, being towed down by steamers there, and then they are caught by the southerly or south-westerly winds, and they dare not run back to Liverpool, because they would get back at the wrong time of the tide, and no doubt they would come into Holyhead in such a case.

1383. Supposing Holyhead is so far finished within the next three or four years as to become very valuable as a harbour of refuge, it would have the immediate effect of reducing the insurance on vessels running in and out of it?—I think it would, because I believe that all insurances are governed by the average losses.

1384. Do you think that there would be a perceptible difference in the insurance of Liverpool vessels in consequence of the formation of Holyhead Harbour?—I think that we must suppose so; for I believe that insurances are always governed by the average losses; and I have no doubt that many of those vessels that are lost by going into Liverpool would be saved by going to Holyhead; I think so.

1385. Mr. *Liddell.*] You speak of the average tonnage of vessels navigating this particular coast; your attention has been called to and you are acquainted with the fact, that screw steamers are being very extensively built and employed in this trade; it would not be an unfair estimate to put them at the value of about 10,000 *l.* a piece, would it?—£. 10,000 to 12,000 *l.*

1386. Are you also aware that, in the event of stress of weather, a great loss takes place in colliers, averaging certainly as high as 180 tons, for this reason, that the smaller vessels are able to enter more easily than that class of ship the smaller harbours already existing?—I can fancy that that would be so, but the colliers, I think, are a much smaller average than that, generally speaking; I find that the Newcastle vessels scarcely average 130 tons; the Hartlepool about 130; the Sunderland about 110 or 115; the Shields 100 tons, and the Stockton 80 tons.

1387. I now speak, not so much of the average of the vessels themselves, but of the average of the vessels likely to be lost; would there not be more likelihood of the larger vessels being unable to make the harbours already existing than the smaller vessels?—Yes, most likely so.

1388. Do you not think that 1,500 *l.* value per vessel is a very low estimate?—Yes, I think it is a low estimate.

1389. Taking into consideration steamers also?—The number that I have

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

given in this estimate is the number of sailing vessels; it does not include the steamers; this 3,733,000 tons is entirely sailing vessels.

1390. Have you heard of any case in which steamers have been lost recently?—Not recently; I have not heard of a screw collier being lost, except one that foundered at sea.

1391. When you strike an average of the value of the vessels employed coastwise, it is only fair to take that large number of valuable steamers into consideration?—Certainly; but this calculation was made for sailing vessels only; the steamers were included in the foreign trade, making a million and a half more.

1392. You are aware also that it is contemplated to use those valuable steamers very much more extensively in future?—Yes.

1393. Consequently your estimate would not be a very correct estimate of the losses that may in future occur?—I think that the tonnage losses will be reduced by the steamers; because, if they put the sailing vessels out of the trade, they will go so much safer, that they will reduce the average tonnage loss.

1394. You have not had an opportunity of asking the trade generally their opinion upon the subject?—No, these are merely rough opinions of mine, that I first thought of on Saturday evening.

1395. Having thought of them so short a time, you do not presume yourself to be quite competent to pass a deliberate opinion upon the subject?—Not on the question, whether the harbour should be paid for by the local interests or by the Government. I would not like to give a decided opinion upon that; but I have merely endeavoured to show how a certain sum could be raised from the trade.

1396. You only thought of it as a suggestion?—Yes; which I think would be more than made up to the trade by the increased safety given.

1397. You state that you consider that, in the event of the shipping consenting to pay this toll, almost a saving would be effected in the rates of insurance?—Yes.

1398. Now I want to know whether the Board of Trade have ever attempted to ascertain the difference in the rates of insurance charged on account of the defenceless state of any particular coast, as compared with a better protected portion of the coast?—We have nothing to do at the Board of Trade with insurances.

1399. In investigating this question, no calculation of that sort has ever been made?—No, I think not, but it would not be difficult to ascertain it; I see about 130,000 *l.* were the first six months' losses of this year on that coast alone; supposing them all to be mutual insurers, the loss represented by this table would show actually the per-centage on the value of the vessels lost every year.

1400. Do you consider that the increased amount of charge levied by insurance companies on account of the risk would be found about to equal the amount of the passing toll which you propose to levy upon those ships?—I think the trade would be benefited to a much greater amount. The toll, I calculate, would be 1*s.* 6*d.* per 100*l.* on the value of the vessel and cargo. Now, I think that is such a trifle in insurance, that I cannot suppose it would not be more than covered by any decreased risk of loss. I wished to have got if I could, but I have not had time, the rates of insurance for that coast; it could be easily got from the city from any of the insurance brokers, and I have no doubt that, if it could be got, it would be found that this is a very trifling amount compared to it.

1401. Will you procure a return of that kind and put it in?—Yes; I will endeavour to do so.

1402. You have stated to the Committee the enormous amount of shipping engaged upon this coast, and you have stated the frightful statistics of loss of life and property; do you consider that a harbour of refuge, if constructed upon the scale shown upon that plan at Tees' Bay, would afford sufficient shelter for that amount of shipping outward and coastward bound?—I think it would be a very good harbour; judging roughly by the chart, I suppose it goes out to six fathoms, and I think in the centre there would be anchorage ground at low water in three fathoms; and, if so, that would afford a very good harbour of refuge. But I am of opinion that that is the best place; I think it is better than Redcar, judging from the chart alone.

1403. Putting those matters out of consideration, would that harbour be sufficient

sufficient for the use of the amount of shipping which you describe?—I think so, because there would not be a very large amount at any one time.

1404. Are you not aware that those colliers ply in large numbers together in a sort of convoy; that the state of the trade requires that to be so, and they go in large numbers?—Yes. I ran out of Yarmouth Roads with about 250 when I was on my way to the Baltic, all taking the first of the breeze to go. I know they go in flocks that way, and I have no doubt 250 vessels would manage in a gale of wind to find room in the proposed harbour.

1405. Without danger?—I do not say without collision, but certainly without danger as to loss of life or vessel.

1406. Whose is that plan?—Mr. Rendel's.

1407. Has your attention been directed to Captain Vetch's notion of a breakwater to protect the mouth of that harbour?—No, I have not heard of it before.

1408. There is a paragraph in this Report, handed in to the Committee, to which I wish to draw your attention; "It may be here noticed, as a point to be remembered in considering the question, that an easterly gale, or one prevailing from the south eastward to E. by N., or E.N.E., is that which causes the greatest destruction of shipping on the north-east coast, and which was the case in all the following examples;" does your professional opinion corroborate that?—I do not know that from experience, but I know that that is so; I know it from reading and other things.

1409. If I gathered rightly from one portion of your evidence to-day, you said that ships might, under certain circumstances, running northward, and being unable to make the proposed harbour, run and obtain anchorage at the Fern Islands?—Yes, with southerly gales; I was asked with reference to vessels running to the north.

1410. You do not for a moment give the Committee to understand that it is a proceeding safe in an easterly or a north-easterly wind?—No; they would be upon a dead lee shore; it would be a most dangerous position in a south-east gale, because if the wind shifts they are caught in a dangerous place.

1411. Even now, under the most favourable circumstances, it rarely happens that a vessel dares to take the inner course?—It is a very dangerous passage, and one that ought not to be taken as much as it is; vessels running outside, without encountering the dangers of that passage, could anchor on the north side, and get comparative shelter in southerly winds.

1412. Is there good holding ground?—There is a good anchorage depth.

1413. Is not it almost entirely rock?—No, I think not; there are anchorages there; I do not know it exactly.

1414. Sir *Frederick Smith*.] I think you made a sketch of Hartlepool, and of Wick?—Of Wick, not Hartlepool.

1415. Can you give it in?—No, I have not it with me.

1416. Supposing vessels from the North Sea to touch at Wick, being bound to the Thames, and being caught by the southerly gales to the south of Hartlepool, would not Hartlepool then be a harbour of refuge to them?—Most decidedly.

1417. And a very important one, in a national point of view?—Yes; that I call a coasting voyage.

1418. Taking vessels coming from the North Sea, and which are obliged to touch at Wick?—Having to touch at Wick, and then proceeding to the Thames, they become coasting vessels, and would be fairly included in the passing trade; all vessels proceeding from any Scotch port to the south.

1419. With a harbour of refuge at Dover and Portland, you think the trade is well supplied on the south-east coast?—I think so, with the natural anchorages besides.

1420. You require nothing at Dungeness?—I think not. Dungeness would be a very good place, but it would be a very expensive work compared to any benefit to be derived from it.

1421. Mr. *Kendall*.] Do you know the coast of Cornwall well?—Yes, very well; at least I know the south coast particularly well.

1422. Do you agree as to the necessity of there being a harbour of refuge somewhere near the Land's End?—The only harbour of refuge that I think is wanted at Penzance is for the fishermen at Mouse Hole. Some little shelter there for fishing-boats would be very desirable; but, as a harbour of refuge for ships as Falmouth is so near it, I could hardly say it was necessary.

Capt. B. J. *Sulivan*, R. N., C. B.

20 July 1857.

1423. Then take the north coast?—St. Ives is the only place.

1424. There you think it is essential?—It would be a very great benefit.

1425. Do you know St. Ives well?—I have come in in steamers twice, and been there two or three times; that is all.

1426. Do you know that it has been a dispute as to whether Padstow or Neartownhead would be better?—I think at Padstow; the harbour is better than the harbour of St. Ives; but the passage is so close round one of the heads, that no works could improve the inner harbour; therefore any harbour of refuge must include the outer bay.

1427. Might not the outer bay be made much better by a breakwater?—Yes; but I think St. Ives affords more facility for making a breakwater in the outer bay.

1428. You have seen St. Ives, but you have not seen Padstow?—Yes; but I should judge of both by the chart, and I think the bay of St. Ives would certainly afford greater facilities.

1429. Has Padstow Harbour ever been reported upon by the Admiralty?—My attention has been drawn to it by some complaints with reference to the pilots which are in my department.

1430. Has there been any report with reference to Padstow to the Admiralty?—I am not aware.

1431. *Chairman.*] This Table, to which you have referred, represents the coasting trade of the United Kingdom, does it not?—No; it represents only the coasting trade of places north of Hull.

1432. A distinction has been attempted to be made between collisions and wrecks; do not collisions very frequently take place in consequence of the want of a harbour of refuge to which vessels can run?—No, I think not; I do not think collisions would bear upon harbours of refuge; I should quite omit them in considering harbours of refuge.

1433. With regard to the national objects of a harbour of refuge, the meaning which you have applied to the word "national" has had reference only to the Government objects, with reference to men-of-war, and such purposes?—Decidedly.

1434. When you used the word "national," you did not intend the loss to the nation, but the loss of life and capital?—No; I considered all that to be a loss to the immediate parties in the trade.

1435. It is still, in another sense, a national loss, inasmuch as whatever diminishes the capital of a country and the number of lives, is in that respect a national loss?—Certainly.

1436. But it is no more a national loss in that point of view, than the loss by shipwreck, in consequence of the number of wrecks upon the coast?—No, not the least; however property in shipping is lost, it is the same thing.

1437. The principle upon which light dues are charged is, that the vessels benefited by those lights are charged the dues?—Certainly.

1438. The distinction that you drew was this, was not it, that distinguishing natural losses from individual losses, although every loss is a national loss, yet as between classes and individuals it is proper that classes and individuals should bear the special losses attached to themselves?—Yes, certainly; that it should not fall on the whole nation.

1439. With regard to competition with railways, is it not the case, that if railways were to make any improvement by which, in the struggle of competition, they would be able to carry coals cheaper from the north to London, they would do so at their own expense?—Yes, certainly.

1440. No one would propose that there should be a Government loan or grant for the purpose of facilitating or improving the conveyance of coals by railways?—No, of course not.

1441. If a harbour of refuge were made, the effect of which would be to diminish the insurance of vessels conveying coals, and it were made at the expense of the whole country, would that not be furnishing a facility to sea-going vessels partly at the cost of railways, the effect of which would be to increase competition with the railways?—It would be a benefit to the coasting trade against the railways.

1442. It would be for the benefit of one class at the expense of the whole country?—Yes, certainly.

1443. Therefore

1443. Therefore, following the principle adopted at present with regard to lights, and other private interests, are you of opinion that the rate, if charged at all, should be charged immediately upon the property interested in the work? —Decidedly, and upon that only, if it is charged on any.

Capt. *B. J. Sulivan*, R. N., C. B.

20 July 1857.

1444. Lord *Adolphus Vane Tempest.*] I believe you stated, in answer to Lord Naas, that you were not aware whether there was any charge made with reference to Kingstown Harbour?—No.

1445. Are you aware of the principle which exists with regard to other harbours of refuge?—No.

1446. You are not aware whether there is a charge or not?—No.

1447. Can you positively state that there is not a charge?—I do not know; I could not say either way; I have not the slightest idea.

Sir, Board of Trade, 24 July 1857.

The Committee having requested me to obtain information on the amount of premiums of insurance paid by colliers, I herewith forward you a statement which I think quite confirms the view taken by me on the subject.

I have, &c.
(signed) *B. J. Sulivan.*

I find that, in the case of colliers not mutually insured, the annual premium paid for insurance is from 11 guineas to 12 guineas per cent.

The summer insurance for a single voyage from Newcastle to London and back is about 25 *s.* per cent; but the appearance of bad weather causes an increase.

Taking winter and summer, the average insurance for each voyage is probably not less than 30*s.* per cent.

Allowing a vessel of 120 tons, with cargo, to be worth 1,500 *l.*, she would pay each voyage 22 *l.* 10 *s.* for insurance, so that the proposed passing toll of 1 *d.* per ton, or 1 *l.* per voyage would be saved, if the premiums of insurance were reduced only one-twentieth part by the additional safety the harbour would afford. Screw colliers pay from nine guineas to 12 guineas per cent. per annum,

Allowing that one of 600 tons is worth 10,000 *l.*, and that she makes 24 voyages each year, she would pay about 46 *l.* per voyage for insurance. At 1 *d.* per ton each way, her passing toll for the voyage would only be 5 *l.*, which would be saved by a reduction in risk of loss, through the safety afforded by the harbour of only one-ninth.

B. J. Sulivan.

Mercurii, 22° die Julii, 1857.

MEMBERS PRESENT.

Mr. Clay.	Mr. Liddell.
Mr. Dodson.	Mr. Macartney.
Mr. Ewart.	Lord Naas.
Sir R. Ferguson.	Sir Frederick Smith.
Mr. John Henry Gurney.	Mr. Augustus Smith.
Lord John Hay.	Lord Adolphus Vane Tempest.
Mr. Hassard.	Mr. Wilson.
Mr. Kendall.	

JAMES WILSON, Esq., in the Chair.

John Coode, Esquire, C.E., called in; and Examined.

1448. *Chairman.*] WHAT situation do you hold?—Engineer in Chief on behalf of the Admiralty for the harbour of refuge and breakwater at Portland.

J. Coode, Esq., C.E.

22 July 1857.

1449. How long have you been in superintendence of those works?—Nearly 10 years.

1450. From their commencement?—From their commencement.

1451. You were employed under Mr. Rendel, till his death?—Yes, as the Admiralty Resident Engineer.

1452. And since that time the Admiralty have appointed you chief engineer? —They have.

J. *Coode*, Esq., C.E.

22 July 1857.

1453. Are you acquainted with the works at Holyhead?—I have a slight acquaintance with the works at Holyhead; I know the system upon which they are conducted; I have been there twice since the works commenced.

1454. The system followed at Holyhead and at Portland is the same, is it not?—The principle is quite the same: the use of a fixed stage; running waggons on to the stage by means of locomotive engines, and discharging the materials between the rails into the sea.

1455. This is a plan entirely new, and originating with Mr. Rendel?—It is a plan entirely new, and originating with Mr. Rendel; it was first employed by him in the year 1835, at Milbay, near Plymouth.

1456. Will you describe to the Committee the construction of the stage, and the mode by which you deposit the stone?—The first operation is to insert a tier of piles; we use at Portland and also at Holyhead five piles in breadth, representing five parallel lines of railways. The piles are first inserted, then timbers are laid over the heads of those piles, then longitudinal timbers, as girders, for each railway. The piles at Portland are screwed into the bottom, the bottom being a stiff blue clay. At Holyhead, they are loaded at the foot, dropped into their places, and the stone is immediately deposited around them from barges. That is the difference between Portland and Holyhead in fixing the piles.

1457. That is caused by the nature of the soil?—Yes, it is caused by the nature of the soil; and again at Portland there is this difference: that whereas we have to provide constant employment for 900 to 1,000 convicts, we adopt the screw as rather more secure; it is more readily fixed; put down in heavier weather, when there is more sea running, and it is more certain in its result when fixed.

1458. This stage is sufficiently wide for five lines of railway?—Yes, for five lines of railway.

1459. So that the deposit that you make in the water would represent in breadth the five lines of an ordinary railway line?—Rather more than that; I should say that the piles are 30 feet apart in a cross direction, so that five lines of railway would represent four spaces of 30 feet each; the extreme breadth from centre to centre of the rubble outside the railways being 120 feet, there is 30 feet clear space between the railways transversely; the object of that being to bring up a broad mass as we proceed, and that is found much more advantageous than having so many narrow embankments running out from the shore.

1460. When the stage is once erected, a considerable part of the cost is incurred?—It is.

1461. The waggons being filled with stones of various dimensions, run down a self-acting inclined plane; and when they get to the proper point there is an arrangement by which they are toppled over, and discharge their contents into the water?—That is so; the waggons are made to a certain extent self-acting; the load is carried by a waggon which has one end moveable and the other end fixed; the moveable part is in form very much like a large coal-scuttle; when loaded, the lip of this is the heavier part of the waggon, but that is supported by two triggers until the waggon arrives at the point on the stage where it is desired to discharge it, at that point two tumbling-blocks are fixed, and the triggers in the waggon coming in contact with those tumbling-blocks, release the load, and it falls at once into the sea.

1462. Have you found, by your experience, that the stone so deposited remains pretty settled in its position?—Very much more compact than by any other mode that can be adopted, I think.

1463. You find it essential to use stone of various sizes?—It is an essential condition in the success of forming breakwaters of rough stone, that there should be stone of various sizes. I do not conceive that very large blocks are necessary; I should be perfectly satisfied with blocks of five, six and seven tons weight, provided I get my proper proportion of small material, so that the sea shall scatter the whole, and leave it free from interstices.

1464. The small stone makes it more compact work than large stone?—Most decidedly.

1465. Was it the case, in the early formation of Plymouth breakwater, that they found that they had erroneously used, exclusively, large stones?—Yes, it was; small stone, and chippings were discarded, and large stones almost

almost entirely were used; and the consequence was, that the interstices there were proved by the late Mr. Rendel to amount to something like 30 per cent. of the whole mass. Great disturbances took place during very heavy gales, and the only remedy that they found for that, was to resort to the small chippings and rubble which they had previously discarded, and drop them amongst the large stones to consolidate the mass.

1466. So that at a larger cost they had an inferior work?—Quite so.

1467. The whole of the workings of a quarry, therefore, could be used in this work?—Undoubtedly; always supposing that that quarry afforded a reasonable per centage of stones, say from three to six tons in weight. It is essential that there should be a certain proportion of large stones.

1468. What would be the cubic dimensions of the six tons stone, the largest size that you have named?—It would be about 96 cubic feet. We reckon from 15 to 16 cubic feet to the ton. Some of the stone at Portland is as low as 13½ to 14 cubic feet to the ton; but perhaps the average of the stone, such as we use in the breakwater, might be taken at, say 15½ feet to the ton.

1469. And you, for the last nine years that you have had experience of Portland, have no reason to believe that there has been much loss on account of the weather, or by the state of the sea, of the stone deposited on the breakwater?—I may say that I know there has been none, for once every year I have transverse sections taken across the breakwater, from the foot of the slope on the harbour side to the foot of the slope on the sea side, and so determine any changes that may have taken place during the interval, and I find that beyond certain points there is no small material whatever; the bottom of the bay is in its natural condition; had any been removed, of course, we should have found it scattered about near the foot of the slopes; but the foot of the slopes are determined by a very precise line.

1470. At what height from high water is the level of the stage?—The stage is about 18 feet; the rails are about 18 feet above high water; that is, at Portland about 25 feet above low water, the rise of the tide being about seven feet at springs.

1471. Then the fall from the stage would be from 18 to 25 feet?—From 18 to 25 feet, according to the state of the tide.

1472. Is it an advantage to have it so high as that?—It is, for two reasons: first of all, that the stone may be well consolidated when it comes within the action of the sea, which is heaviest between high and low water; and next, that the horizontal portions of the stage may be kept out of the wash of the heavy waves.

1473. The higher the fall, the greater the force with which the stones will fall, and the more certainly they will take their proper places?—Just so.

1474. Then the experiment of this new plan, after nine years' experience in the works at Portland, you are prepared to pronounce to have been quite successful?—Quite successful.

1475. Have you ever known any other mode of constructing a breakwater that has been more successful?—None that has been so much so.

1476. Now, with regard to the cost; is there a great reduction of the cost of making the breakwater by the adoption of this plan?—I think decidedly it is a reduction, and in our case more particularly so, because we have, as I think I have mentioned before, to provide constant employment for a very large number of convicts. Now, in the case of the construction of a breakwater on the system adopted at Plymouth and at Cherbourg, where the material was towed out by steamers, the stone being placed in barges, it will constantly happen, particularly during the winter season, that there will be delays of weeks, and sometimes perhaps of two to three months, when very little or no work could be performed, whereas the establishment in our case is always kept employed.

1477. You are more independent of the state of the weather and the tides?—We are so.

1478. There are very few days in the year in which you cannot continue your work?—I will give the facts at Portland; in the whole eight years and a half that we have been at work at Portland, we have certainly not stopped 20 days from bad weather.

1479. Can you give the Committee any idea of what proportion that would bear to the average suspension of works, if the old mode of using boats, and going to sea and doing the work either by diving bells or by barges, were employed?—

J. Coode, Esq., C.E.

22 July 1857.

employed?—I should think, taking the average of years, that with the system of staging, with a properly constructed stage, about three days per annum would represent the detention arising from bad weather; whereas, in the case of deposit from barges, I should think it would be represented by somewhere about 50 or 60 days; that is the closest general idea that I can form from the result of my experience at Portland.

1480. Then, the loss of time would be in the proportion of three in one case to 50 or 60 in the other case?—Just so.

1481. The advantages of the stage system must depend a great deal on the supply of stone in the immediate locality, must it not?—Yes; as far as the locality is concerned if the stone be brought from a distance, the probability is, that it will be brought by vessel, and then the better way would be to tip it from the vessel at once, and not to land it for the purpose of discharging it by the stage; always supposing the stone to be brought by railway, the stage has decidedly the advantage over any other system.

1482. Wherever the stone is to be brought from the land side the stage plan is most advantageous?—Yes, decidedly.

1483. But when it is brought by sea, the other plan of discharging it direct from the vessel would be the most advantageous?—Just so.

1484. You know the process which is used at Dover, at the present time?—I do.

1485. That is a very expensive and very slow process?—It is expensive and slow, but it is one that is rendered necessary by the circumstances at Dover; they have no material within a reasonable distance which they could use for the purpose of rough deposit in a breakwater; therefore they have necessarily to resort to a smaller quantity of material, bestowing a greater amount of labour upon it.

1486. Their stone is all sea-borne?—Their stone is all sea-borne; the stone is principally granite, with some small quantity of stone from Portland; the roach Portland, such as we use; and also artificial concrete blocks, made with shingle.

1487. In the event of stone being carried a great distance, and being sea-borne, would the plan that you follow, of using small and large stone indiscriminately, and throwing it into the sea, be equally applicable?—It would be equally applicable, but there would be a very great cost entailed in landing the stone from the vessels in order to put it into railway carriages; it is applicable, but as a question of economy, I doubt its being advisable.

1488. What is the applicability as regards the construction of the description of breakwater of itself?—It is quite possible to construct a breakwater in that way, but I think that the cost would be very much greater than if it were discharged from the vessel.

1489. How is the foundation at Dover made now?—Entirely by masonry; the bottom is chalk, which is levelled by divers, and they first began to set the blocks upon the bottom of the bay.

1490. The difference between Dover and your plan is, that at Dover the walls are built in masonry from the foundation?—Yes.

1491. Therefore, the whole work is done by diving bells and masons?—Yes.

1492. In that respect, where the material is to be brought from a great distance, would the mode of tumbling it into the water indiscriminately, in the way you have described, from the stage, be applicable at Dover and other places where you bring the stone from a great distance and by sea?—Where the stone is brought from a great distance and by sea, I should certainly recommend the plan which they adopt at Dover; I think that they have no alternative.

1493. It is only where you have a large quantity of rough material immediately in the neighbourhood, that you think it would answer to use this plan which is followed by yourself, of throwing the stone indiscriminately into the water, for the purpose of creating a natural breakwater in that way?—Yes; only under such circumstances should I recommend that system.

1494. A breakwater constructed in the manner you have described, must be very much less costly than one constructed by mason work from the bottom?—Yes; very much less; always supposing the stone to be ready at hand.

1495. How high do you construct your breakwater before you commence your masonry work at Portland?—The stone is deposited until it reaches about eight or ten feet above high water; but, as left by the waggons, it forms a series

series of ridges, a ridge being under each line of railway; then the sea being allowed to work upon that for some two, three or four years, levels or distributes this material, and forms certain slopes, the whole being one general plane, not level, and the sea consolidates the materials together; after a time we remove a trench down to the level of lowwater, and then commence our masonry.

1496. You leave the consolidation and distribution of the stones entirely to the action of the sea?—Entirely to the action of the sea.

1497. And you find that that is done as perfectly in that way as it could be by the hand of man?—I think more perfectly.

1498. The small stones work into the interstices for which they are best adapted by the action of the waves?—Yes, that is the result, and it is done without cost.

1499. And you find that it makes a compact and solid basis, capable of carrying any weight of wall which, from the experience of eight or ten years, you are prepared to pronounce as being perfectly secure against the strongest action of the sea?—Yes; that is the result at Portland, and I believe it will be so elsewhere, provided the size of the stones be at all judiciously chosen.

1500. If the stones were all large, it would be more apt to shift than if there were a proper proportion of smaller stone?—Yes, very much more.

1501. A great variety of sizes makes a more solid mass in the whole finally than if they were all large stones?—Yes, very much more solid.

1502. Have you had, during the construction of this breakwater, occasionally very heavy storms?—Yes; several very heavy gales from our most exposed quarter, which is the south-east.

1503. Have you had gales sufficiently important to justify an opinion that it would stand any gale that we may expect?—Yes; you may readily suppose that over a period of eight or nine years we have had some very heavy gales; in January 1854 we had an extremely heavy gale.

1504. So far as the quality of the work is concerned, and the purpose for which it is intended, every thing that you have seen would induce you to recommend this as the best mode of forming a breakwater that has yet been tried?—The principle is decidedly the best; there may be cases, however, where it might be desirable to found a seaward wall in about 12 feet under low water instead of building from low water, as we are doing with the inner breakwater at Portland, for we have, as yet, commenced the masonry only upon the inner breakwater, which is not so much exposed as the outer or detached work; but in very exposed cases, I think that, although slightly more expensive in the first cost, the maintenance of any such work would be very much reduced, and its safety ensured to a greater extent, if the masonry were founded in a depth of say about 12 feet under low water; of course that depth will vary according to the amount of exposure, and the heavy seas to which the works may be liable.

1505. You allow this mass of stone to remain four or five winters before you commence the masonry?—Yes.

1506. In order to consolidate it more perfectly?—Yes.

1507. If you commence the masonry work 12 feet below low water, that must be done by means of diving bells?—Yes, and in that case it might be commenced immediately.

1508. Would not that add very much to the cost of the work?—It would add to the cost of the masonry, but the quantity of rough deposit would be very much reduced indeed.

1509. Placing the rough deposit is a very much cheaper process than that of placing masonry, is not it?—It is much cheaper, but the proportion of rough deposit per foot of depth very much increases when you get above the level of about 12 feet under low water, and for this reason that below the depth of about 12 feet under low water the slopes will generally be about 1¼ to one, that is, 1¼ horizontal for every one perpendicular. Above the depth of about 12 feet under low water the slopes will begin to partake of a very much flatter character; the slopes there will very often be as flat as 7 and 8 to 1; 6 and 7 to 1 being very common slopes. I will compare Portland and Holyhead as an illustration. At Portland the rise of tide is about 7 feet; at Holyhead their springs are about 19 feet, the difference being 12 feet; the breadth, which would be added for the whole depth at the Holyhead breakwater, above that, would be no less than 84 feet, or 12 times 7; that depth would necessarily be carried to

J. Coode, Esq., C.E.

22 July 1857.

the bottom; therefore, the reason why the expense is not so much greater is, that above the depth of 12 feet under low water the ratio or the proportion of rough deposit would be very much increased for every foot in depth; consequently you economise in a much greater ratio than the depth of water would at first sight lead you to suppose.

1510. Does not the whole mass of the breakwater taper to the top and become narrower as you get to the top?—It does.

1511. Is it steeper towards the top?—No; very much flatter; from high water to about low water the slope will be about 6, 7 and 8 to 1. For every foot in depth between high and low water there will be a breadth of 6, 7 or 8 feet, and below low water, to about 12 feet in depth, (I speak of 12 feet as the average; sometimes it is 10 and sometimes 15 feet), but say about 12 feet in depth, the slopes will be perhaps 5 and 6 to 1. Below the depth of 12 feet under low water, no matter how deep, the slopes will be uniformly one and a quarter to one. That is an important consideration.

1512. Is it the pressure of the water that prevents the stones from spreading?—No, it is this; that the waves do not generally act at a depth below, say 10 to 15 feet under low water, to disturb the material; the force of the wave is annihilated, and therefore the stone lies nearly at its natural inclination below that depth; but above that depth, when the wave partakes of a forward movement, the slope becomes very flat, and the ratio will vary according to the exposure.

1513. At low-water mark, what would be the breadth of your breakwater?—At present, after being acted upon by the sea, about 90 to 100 feet.

1514. What is the breadth at the foundation?—Three hundred feet.

1515. Then the inclination between the bottom and the low-water mark is the half of the difference between 90 feet and 300 feet?—Yes.

1516. What is the breath of the rough deposit when you get above high-water mark, where you conclude your breakwater, before you commence your masonry work?—About 60 feet; but you may make any breadth by widening your stage.

1517. But with the same stage, there is deposited 300 feet at the bottom?—About 60 or 70 feet.

1518. What is the breadth of the masonry work that you would put upon it?—The breadth of the masonry work is a wall of about 15 feet, with counter forts of an additional 12 feet in breadth at every 20 feet.

1519. Have you any rough sketch of the form of this breakwater?—I have not at present, but I can draw one.—(*The Witness sketched a Plan, and exhibited it to the Committee.*)

1520. You say that you have followed two plans; one has been to erect your masonry work above high-water mark, commencing at low-water mark; and another has been to commence your masonry work about 24 feet below low-water mark?—Yes; and this 24 feet in depth was in order to enable us to form the two circular ends to the two breakwaters that we are making; and from this depth of 24 feet, the masonry is gradually stepped up until we come to low water.

1521. Where you commence your masonry below low-water mark, you do not require so much rough deposit as where you commence above high-water mark?—No; the quantity of rough deposit as a foundation is very much reduced by stopping at the depth at an average of about 12 feet under low water.

1522. It would be a matter of calculation which was the cheapest plan, which would be determined in a great measure by the cost and the facility with which you could obtain this rough material?—Precisely so; and the cost at which we could obtain material well fitted for masonry.

1523. Both of these plans are being followed in different parts of the Portland works?—Yes.

1524. As you are circumstanced at Portland, are you able to inform the Committee which of these two plans would be the most economical?—For the inner breakwater, the masonry of which we are now completing, the plan of commencing at low water is the best, because that breakwater is not so much exposed. With regard to the plan that should be pursued on the outer breakwater—always supposing that any masonry is necessary at all, for that remains yet to be proved, and will depend upon two circumstances; first, whether the sea

sea will so disturb and move this rough material, as to cause masonry to be necessary; and next, whether the requirements of the harbour may demand further quays and wharfs to be constructed along this breakwater—it remains yet to be seen what will be the most desirable course to pursue for the outer breakwater.

1525. As a breakwater only, it will depend entirely upon whether it stands the action of the sea?—Yes; and we shall require, say some three years' more experience, in order to determine whether or not a masonry superstructure will there be necessary.

1526. Has Plymouth breakwater any masonry?—It has masonry, but it is built upon an inclination; our walls at Portland are practically vertical. At Plymouth the seaward slope is formed of masonry and squared blocks, on a slope of about four to one, I think, if my memory serves me rightly.

1527. For the construction of this breakwater at Portland you have employed chiefly convict labour, have you not?—Convict labour is employed to this extent; they quarry the material and fill it into the waggons; the waggons are then delivered at the barrier gate, where the contractor takes charge of them: he takes them down over the inclined planes, runs the trains on to the stage, deposits the rough stone, and returns the empty waggons to the barrier again.

1528. Where they are taken in charge by the convicts?—Where they are again taken in charge by the convicts.

1529. Have you, on that portion of the work upon which convicts are employed since you have been in charge of those works, ever employed free labour?—On works somewhat similar, we have for a short period.

1530. Have you made any estimate of the comparative cost of the two?—Generally, I have. It is difficult at this moment to say whether there will be any saving at Portland by the employment of convict labour. Much will depend upon the rate at which the stone is delivered during the next four years or thereabouts, which we assume to be necessary for the completion of the work, because the convicts cannot conduct the whole of the work; they cannot construct this stage, and, independently of other reasons, it would give them too much liberty to allow them about the island, to manage the waggons and take them down to the breakwater; there must necessarily then be a point at which contract labour and convict labour will unite, and inasmuch as we, the Admiralty, have not the control over this convict labour, we cannot guarantee to the contractor the delivery of any given quantity of material, and upon the delivery of that quantity of material will depend the rate per ton at which the work can be accomplished. Therefore the principle that we adopt in paying the contractor (and I think it is the only one that can be adopted under such circumstances), is that of a sliding scale, because his establishment is just the same whether he takes down 1,000 tons a day, or whether he takes down, as we have been doing lately, 2,500 tons; the same breaksman upon the inclines, and the same attendants throughout the whole of the inclines, will take down 2,500 tons as easily as 1,000.

1531. You pay him a smaller rate per ton as you increase the quantity?—That is so.

1352. When you say that the Admiralty have no control over the convict labour, do you mean that they are unable to determine accurately from time to time the amount of that labour, and therefore the quantity of stone that they can deliver, or that they have no authority in managing the men?—They have no control over the number of convicts to be sent and employed; that rests entirely with the Home Department, and it may be more or less according to circumstances.

1533. The absence of control does not apply in the sense that you used it to the conduct of the men?—No. Still the conduct of the men, the care of the men, the discipline of the men, and the ordering of the men, lie with the Convict Department.

1534. With the prison authorities?—Yes, with the prison authorities.

1535. The labour of those men is not so valuable as that of free labour, inasmuch as they have not been brought up to that particular occupation?—Just so; when first they come they have no skill and no experience; and, by the time that they have acquired it their period of sentence has elapsed, and they are removed elsewhere.

1536. Will you describe to the Committee the mode in which you pay those men?—

J. Coode, Esq., C.E. 22 July 1857.

men?—Latterly there has been no payment made as for the convicts; that is, since the year 1854.

1537. It has been kept as a matter of account since that, has not it?—No, certain payments have been made throughout. Prior to 1854 the Admiralty allowed the Home Department 1 *s.* per man per week for each convict employed in the quarries, with one-fifth added for non-effectives, and also 6 *d.* per man per week, which went as a sort of extra pay to the warders, in order to induce them to exert themselves to increase the quantities; and also, I should add, in compensation for the extra duties that they had to perform as compared with the duties of an ordinary prison, because those men had, in addition to their ordinary prison duties, all the superintendence of these men from morning till night while they were upon the works; and it was felt that something was necessary to induce them to use their best exertions, and 6 *d.* per man per week was granted for that purpose. Since the year 1854 the payment of the 1 *s.* per convict per week has ceased, and the sum of 6 *d.* per convict per week is now paid from the Admiralty to the Home Department, which goes to the prison officers who have charge of the men as a kind of foremen overlookers.

1538. Do you pay nothing more for the labour of those men than what you have described?—As for the labour, nothing more.

1539. Do not the convicts get gratuities for good conduct on those works?—They do, I believe, but where that fund comes from since the year 1854 I cannot say; prior to that time there was a gratuity which came from the Admiralty pay.

1540. Then the maintenance of the convict is defrayed from the Convict Estimate?—Wholly and solely from the Convict Estimate.

1541. Then you are not able to form any opinion as to the money cost of the labour of the convicts?—No, not as regards the cost of the convict establishment; none whatever.

1542. Have you any means of tolerably accurately comparing the value of convict labour and free labour?—Yes, pretty nearly by the quantity of work done per man per day; every ounce of stone which goes into that breakwater is passed over a weigh bridge; therefore, we can tell accurately from day to day, and from hour to hour, the quantity which has gone into the breakwater.

1543. Taking the general average of the convict labour which you employ, what comparison would it bear with free labour, do you think?—The convict labour, would amount to about 2½ to 3¼ tons per man per day of 10 hours, say 2¾ to 3 tons per man per day; the free labour, I consider, would amount to something like eight to nine tons per man per day.

1544. Then, in point of fact, you may say that the efficiency of the convict labour, as compared with free labour, is as one to three?—As nearly as possible, from 1 to 2¾ or 3.

1545. Does that arise from the indisposition of the convicts to work, or does it arise chiefly from their inaptitude, from want of skill and knowledge and practice?—It arises from both; it is difficult to say how much from one and how much from the other.

1546. Partly from both?—Partly from both.

1547. Do you find any inconvenience from the want of discipline, or from the disorderly character of the convicts?—None of any consequence; there has never been but one occasion, I think, when there was any difficulty at all, and that lasted only three or four days.

1548. The work is much less per man; but is it much less regular than free labour?—Yes; it is more variable than free labour; for instance, in certain parts of the year we are subject to fogs, and the convicts are then withdrawn; the number of prisoners on the establishment will vary from week to week; that will be a cause of variation also; then again, the frequency with which the prisoners are removed, by replacing men who are comparatively skilled by those who are entirely new to the work; that is another cause of variation.

1549. The constant fluctuation of new men replacing old ones is a cause of variation?—Yes, and to show how unforeseen circumstances will cause a variation; it was generally considered, I think I am right in saying generally, by the officers of the convict establishment, that, during the latter period of the late war, the men were very much less efficient than previously, and they considered that it arose in this way, that the able-bodied men had been drafted off to the militia or had enlisted, and the inefficient men, who had been rejected, had taken to vicious habits and found their way to Portland.

1550. The

1550. The criminals themselves were altered in character?—Yes.

1551. The war had taken off the best, physically speaking, and left you the weakest?—Yes; that was the general opinion, and the officers of the convict establishment, I think, will bear me out in that; I learnt it from them.

1552. Did you find during that time that the entire number of convict labourers that came to you were fewer?—The numbers were rather smaller, and the men not so able.

1553. It was the worst portion that were left?—It was so considered; and it seems consistent with common sense.

1554. I suppose the time that has elapsed since the reduction of the army hardly enables you to speak to the effect of that?—I think not; at any rate, I have not heard any remark fall from the officers of the convict establishment; there certainly is not that complaint of the inefficiency of the men that there was a year and a half or two years ago.

1555. The greater irregularity of the work performed by the convict portion of your establishment would have a very bad effect upon the free portion, inasmuch as it would render their work more uncertain?—Just so.

1556. So far, therefore, the employment of convicts in the one part would make the other more expensive?—It does.

1557. The inefficiency of the convict would take away part of the efficiency of the free labour?—It would; and the establishment which was capable of doing what we are now doing, 2,500 or 3,000 tons a day—which we consider we have ample accommodation for—was, comparatively speaking, unemployed, doing, only about 1,500 tons a day.

1558. As a question of economy, you would rather have free labour than convict labour?—Yes, very much.

1559. And as a matter of efficiency?—Yes; and as a matter of speed in completing the works, which is a very necessary thing where the sea is concerned.

1560. You would, therefore, only recommend the employment of convict labour where you are obliged to maintain the convicts whether you employ them or not?—Just so.

1561. What do you mean by the comparison which you drew just now between free labour and convict labour?—I mean this: we provide an establishment fully competent to deposit 3,000 tons per day in the breakwater.

1562. That is a free labour establishment?—A free labour establishment, and the railways and inclined planes, and the whole of that arrangement; and the men who are employed at this moment by the contractors are fully competent to discharge 3,000 tons per day in the breakwater; it might involve the working of another locomotive engine, but nothing more than that; now, our average from the commencement to the present time, I should say, does not amount to more than 1,500 tons per day.

1563. From convict labour?—The quantity that we have received from the convicts; therefore, had we received the full quantity which the establishment and our plant is equal to, the breakwater would by this time have been completed, that is, the rough deposits.

1564. Could not that be altered by the employment of a larger number of convicts?—The employment of a larger number of convicts, or a greater efficiency in the same number employed, would of course remedy it; I am speaking now as to my experience of the facts.

1565. That is a matter that depends upon the number of convicts you have to employ?—Yes.

1566. In point of fact, your establishment is disproportioned to the amount of labour you can get from the convicts?—Yes; we always understood we should receive something like 2,000 to 3,000 tons per day.

1567. But if you had an establishment calculated to receive only 1,500 tons a day, those convicts would have been sufficient to have kept that establishment in full work?—I do not see how the establishment could have been different, because there is a certain length of railway, and certain drums and machinery and drops, and a fixed number of breaksmen.

1568. An arrangement for a smaller quantity would not have been an economical one?—Not in the case of Portland; the circumstances in this respect might probably be more favourable elsewhere.

1569. In the case of Portland, a deposit of 3,000 tons, you think, is the

minimum quantity you should deposit in order to perform the work economically?—Not the minimum quantity; the scale would begin to turn about 1,800 or 2,000 tons a day; the scale would then be turned in favour of convict labour, whereas at present the quantity we have received has been just under the point at which the advantage of employing convict labour would be evident.

1570. When you compare the cost of convict labour and free labour, do you account in the one case for the whole wages of the free labour, and for none at all in the convict labour?—I account for the whole wages of the free labour, and the small sum paid for convict labour, which is 6 *d.* per head per week; but then there are other large charges to be considered. For instance, the establishment and plant in the quarries, if it were in the hands of free labour, I have no hesitation in saying, would turn out 4,000 tons per day; the same plant, and the same number of cranes and waggons, would turn out 4,000 tons per day, whereas our average has been something like 1,500 tons a day; that is also a point which should be borne in mind, that to do a given quantity of work with convict labour requires a much larger establishment, in the shape of plant, cranes and waggons, than to do the same quantity of work by free labour.

1571. Therefore the indirect disadvantage of convict labour, as compared with free labour, absorbs nearly the whole of the wages you pay for free labour?—That is just the result of our experience at Portland.

1572. So that, as far as regards the cost at which works can be performed, though you have convict labour for next to nothing, there is no economy in employing it?—Exactly.

1573. So that, unless it were with a view to the reform of the prisoners, and other considerations irrespective of your work, but more intimately connected with prison discipline, you could not, from your experience, recommend the use of convict labour?—That is quite the case.

1574. Do you know anything of the harbour of Wick?—Not personally; I framed an estimate upon a plan submitted to me by the Admiralty in February last.

1575. On the 10th of February?—Yes; I sent in a report then.

1576. You have not been at Wick yourself?—I have not.

1577. But you know the nature of the coast by the chart?—Yes, right and left of the Bay.

1578. And you know the character of the land in the immediate vicinity of the coast?—From description only.

1579. You understand that the shore is composed of high rocks?—Yes; of the old red sandstone, and that it is particularly favourably situated for quarrying and delivering on to a breakwater.

1580. As far as you have been able to ascertain the nature of that coast, and the situation of the proposed breakwater, do you believe that the plan adopted at Portland by constructing a stage and depositing the rough material, would be the best for that particular locality?—I think so, decidedly.

1581. You have given an estimate in this letter of the 10th of February, of the cost of that breakwater?—I have given two estimates.

1582. Based upon two different suppositions?—Yes.

1583. Have you confidence in the correctness of this estimate now, which was made in February, or has there been anything to disturb your views of the correctness of it?—Nothing at all.

1584. This estimate was framed upon the experience that you have had of the Portland Breakwater?—It was my experience at Portland that guided me in framing that estimate.

1585. Do you think the circumstances at Wick are equally favourable to those at Portland?—Perhaps even more so, as represented to me. As I understand, at Wick the material can be taken at once from the cliffs and thrown nearly at a level on to the stage, whereas at Portland we have to lower the stone some 370 feet, and to pass over three inclined planes to the level of the stage; the quarries are 370 feet above the level of the sea.

1586. Those sums you have inserted in this letter of the 10th of February last, you think may be taken with tolerable accuracy as to the cost of these projected works?—I do; of course I could not speak very confidently without a personal examination; I take it, based upon the representation made to me of the facilities for getting the material at Wick.

1587. Admitting

1587. Admitting that those facilities are such as they have been represented to you, you have confidence in the accuracy of this estimate?—Yes.

1588. From your experience of the construction of the Portland Breakwater, have you found that the same results have been pretty uniformly obtained from the same quantity of stone deposited; I mean the efficiency of a given quantity of material deposited?—Yes, that is so. I have on two occasions calculated the cubic space occupied in the breakwater by a ton of stone, once about four to five years since, and once about a twelvemonth since, and I found the result practically the same, showing that the quantity of material which was required to fill a cubic foot of space in the breakwater was the same in one case as in the other.

1589. Therefore you think this mode of construction is not open to any material variation from accidental causes?—I think not, and that view is confirmed by the fact of the quantity of material in the work at Portland being based generally upon the quantity in the breakwater at Plymouth, taking the slopes at Plymouth as the basis for the calculation of the quantity at Portland, and experience has shown that that was a correct view. I do not find that the sections I alluded to in the former part of my evidence, show any material difference; indeed they show practically no difference in the quantity of material per yard forward of the breakwater, assuming the depth to be the same.

1590. In performing works in this way, you have much less accidental circumstances to provide against than in the old plan, or the plan of masonry?—Yes, I think so; but much will depend upon the mode in which the stage is constructed; it is quite possible, with an inefficiently constructed stage, that the damage might be great during the progress of the works, but with a properly constructed stage I believe the contingencies are reduced to as low an amount as possible.

1591. The suspension of the works, owing to bad weather, is reduced to a very small sum?—Practically nothing.

1592. And the chance of bad weather is one of the chief causes of uncertainty in works such as those carried on at Dover?—Yes.

1593. Therefore in this particular kind of work, in any calculation that you make, you have a data of much greater certainty than there is in the usual mode of making breakwaters?—We have.

1594. That circumstance gives more certainty to the calculations which you have made, based upon this principle?—I think it should be so considered; that is my view of it most decidedly.

1595. You have stated that a considerable part of the cost consists of the stage and the works attached to it?—Yes.

1596. A good deal will depend as to the whole cost of the work upon the time in which it can be performed, so as to reduce in the one case or increase in the other, the cost of maintaining that stage?—Yes, the time will be a very important element in the cost; for instance, had the rough deposit at Portland been completed at this moment, there would have been no necessity for the renewal of any part or portion of that timber staging, but by the works being prolonged to the extent of about five years, we shall necessarily have to renew some of those timbers; therefore that cost must necessarily be set down to the extension of time.

1597. That again is a great disadvantage in the use of convict labour, is it not?—So far as the small quantities arising from convict labour in our case would apply, it certainly is, because the same stage, the same plant in the quarries, and the same number of men employed on the inclined planes, would by this time have completed the whole rough deposit in the breakwater, whereas at this moment we have at the very least three years' work before us.

1598. With free labour you would now have been in a condition to dispense with labour altogether?—Yes, the quantities deposited at Holyhead at this time are just the quantities we shall have ultimately to place in our breakwater. They commenced at Holyhead at the same time as we did; they have deposited about four million tons, and we two and three quarter millions.

1599. Then the additional cost to which you will be put for renewing the stages hereafter, may be attributed to the slowness of the works, in consequence of the use of convict labour?—Yes, and the maintenance also.

1600. Do you know the coast of Tees Bay?—Not except by chart; I have no personal knowledge of the locality.

J. Coode, Esq., C.E.

22 July 1857.

1601. You do not know the formation of the ground round the bay?—I do not, of my own knowledge.

1602. Is this plan of constructing a breakwater by a stage necessarily confined to breakwaters that start from the land, or could it be applied to a breakwater such as that at Plymouth, which has an opening at both ends?—It might be applied to an isolated breakwater, and I think I can satisfy the Committee upon that point, by stating that one of our breakwaters is detached; we have made the first, which is about 1,800 feet from the shore, then an opening of 400 feet, and then a breakwater of 6,000 feet. In order to pass this opening we have constructed what may be called a bridge, which from the point at which it leaves the inner breakwater, to the point where it joins the other breakwater, is about 1,000 feet in length; that bridge is almost self supported by the peculiar arrangements that we have adopted, and is to all intents and purposes as if the outer breakwater had been started 1,000 feet from the base of the cliff or the shore.

1603. Your bridge is in the shape of a continuous stage?—Yes; in the shape of a continuous stage, and the locomotive engines run over it every day.

1604. So that that plan would be equally available in the case of a breakwater detached from the shore, or one joining the shore?—The fact I have just named proves that sufficiently to my mind at all events; I am quite satisfied upon that point. Of course a stage exposed to so great a height will necessarily have to be well stayed and secured; we adopt special arrangements in that part of the stage, such as moorings on the outside, and additional stay rods.

1605. Wherever a breakwater only is required, and there are no piers, and masonry work can be entirely dispensed with, the deposit of rough material to the necessary height above high-water mark would be a very much cheaper mode of constructing such a breakwater than applying any masonry whatever?—Very much cheaper; and in many cases that would be quite sufficient. There may be cases, however, where the cost of the rough material would be rather large, and the exposure would be very great, and the facilities for obtaining stone fit for masonry purposes also great, where it might be more desirable to begin with a small rubble deposit, and then build at a certain depth below low water entirely of masonry.

1606. That would depend upon a calculation of the price as to where the material could be obtained?—Yes.

1607. If the material could be obtained, simply relying upon a rough deposit for a certain height above high-water mark would answer all the purpose, so far as solidity of construction went?—In most cases it would; but there may be cases where the violence of the sea would be so great, that the material above high water, without some protection, would be so disturbed that masonry would be necessary to perfect the security of the work; but there are very many cases in which a simple rubble deposit would be quite sufficient.

1608. I suppose the rubble deposit, under low-waker mark, would be much more solid and secure than that above high-water mark?—I do not think it would be more solid; it would be more secure. I make the distinction, for this reason, above about 12 feet—taken as the average—below low-water mark, the action of the sea is very great, and tends to consolidate the material; but that does not obtain below about 12 feet under low water-mark, where the material remains just in the condition in which it originally falls; there is no disturbance or removal afterwards. Down to a certain depth there is, where the wave may act.

1609. You are of opinion that it is only at the depth of the action of the wave that any disturbance, or as it were self-acting deposit, and working in of the stones, takes place?—Just so. I do not think the sea tends to consolidate the material below that depth.

1610. Is there any disadvantage in this construction which you have observed in the course of your experience, to which you wish to call the attention of the Committee?—None whatever; I know of none.

1611. In point of the speed of time in which the work can be performed, it is very much to be preferred?—Very much.

1612. And also in point of the certainty of the work?—Yes, in point of the certainty of the work; because it will be quite intelligible to the Committee that

that you cannot work with divers and diving bells during rough weather or during wind.

1613. You would sum up your opinion upon this system by saying that it is more economical, and much quicker done, and done with much greater certainty within the space intended?—I quite concur in that view.

1614. Mr. *Macartney.*] You said that you had been on the works of Portland since they commenced?—Yes.

1615. Did the works at Portland originate in a desire to test to the outside the principle of convict labour as remunerative to the Government?—I am not aware whether such was or was not the case; Mr. Rendel's original report, which was made in 1846, makes no reference whatever to the application of convict labour; indeed, I know that it was then assumed that the work was to be done entirely by free labour.

1616. Did the works commence with convict labour as well as free labour?—The quarrying of the stone, and the loading of the stone for the breakwater, commenced by convict labour; but I should explain, that there was a period of about three years occupied in making the preliminary arrangements, such as the construction of the inclined planes, and the convicts were not employed till after that work was done.

1617. All those works that were done by free labour in the first two years were with the object of employing convict labour?—They were.

1618. Mr. Leather is, I think, the contractor?—Yes.

1619. Has he been so since the commencement of the work?—No; Messrs. Rigby were the first contractors.

1620. When did Mr. Leather become the contractor?—In the year 1850 or 1851.

1621. In Mr. Leather's contract, and in Messrs. Rigby's contract before, was there any specification that their establishment of free labour was to come and go, increase and be diminished, according to the supply of material sent down by convict labour?—The clause was this, that the contractor should take from the quarries all the waggons which the convicts might load, take down those waggons, discharge the material, and return them with all due speed to the satisfaction of the engineer; he was bound to deposit in the breakwater all the stone that the convicts could supply.

1622. Was he bound to any particular time to have a certain amount of the breakwater completed?—No.

1623. That depended entirely upon the material that was sent down from the convict establishment?—Entirely.

1624. Had Mr. Leather and Messrs. Rigby any men employed in the quarries obtaining the material necessary for the breakwater?—There were men from their establishment, in this way; the men employed on the locomotive engines, the engine-drivers, and the breaksmen attending the waggon trains are free men, and those men the contractors supply as they are demanded, and the contractors are paid for those men at per day.

1625. But had the contractor any men employed as quarrymen?—No.

1626. No free labour quarrymen have been employed since the works commenced?—Not in the convict quarries.

1627. In any quarries connected with the works?—Yes.

1628. Where?—On the side of the inclined planes; a portion of the ground was opened, and some material was sent down by Mr. Leather in the year 1854, I think.

1629. That has ceased now?—That has ceased now; but I should perhaps explain, that we have lately commenced employing free labourers in excavating a ditch for the fortification works; it has been considered necessary to construct a large ditch on the top of Portland; and, in order to do that, and to aid the quantity coming into the breakwater, as the supply from the convicts has not been considered sufficient, free labour has lately been employed and is now being employed.

1630. In the materials sent down from the quarries, is any portion of it prepared for building work, or does it all come in the rough block as it is raised?—The convicts prepare some portion for the masonry, some they rough square and some they finely square; that is, some blocks for setting in the superstructure of the breakwater at Portland.

1631. You have stated that you have ascertained that three tons per day is about

J. Coode, Esq., C.E.

22 July 1857.

about the yield of a convict's labour in the quarry, whilst that of a free labourer would be eight tons; how did you arrive at that conclusion?—By watching the number of convicts employed, and the quantity of stone delivered by them; and also watching the number of free men employed, and the quantity of stone delivered by them.

1632. Have you had by that means the power of testing the one against the other?—I have.

1633. Are you aware that all the machinery necessary, and all the tools that are used in the convict depôt, with very small exception, are entirely produced by the labour of the convicts?—Many of the tools are; the bars, and jumpers, and hammers, and things of that kind, and some of the repairs to the waggons, are effected by the convicts; some portion they do not undertake; that is done by the contractor, and charged for.

1634. Have not the traversing cranes been prepared by convict labour?—Yes.

1635. Are they not considered perfectly good for the work of such a quarry?—Yes; they have answered every purpose.

1636. In making this calculation between convict and free labour in the quarry, have you taken into account the enormous amount of material of a finer class of stone that is not sent down the inclined plane, and that becomes an inconvenience to the convict labour, from being obliged to be stored within the convict depôt?—The quantity of that stone which the convicts have raised has been credited to them; they have had credit for so much stone quarried.

1637. But that is not charged as against the breakwater?—It is not charged as against the breakwater, but it has been taken into the consideration of the three tons per day which I have named.

1638. Are you aware of the amount of that stone that is now stored in the works, that you cannot use in the breakwater?—I dare say we have there, when fully squared, something like 35,000 tons; it is more than that in its rough state.

1639. What is the quality of that stone; is it of the finest quality for building?—Some of it is very fine.

1640. Would it be advantageous to get rid of it out of the way?—Yes, and we are sending, from time to time, portions of that stone to Keyham, to Chatham, to Haslar, and to Deptford; and I understand that it is in contemplation to use a considerable quantity in the works which are proposed at Chatham.

1641. Has any material hitherto been used in the breakwater, with the exception of that which is produced in the Isle of Portland?—Some portion of granite has been used in facing the sea heads; also a portion of the sea-wall within the influence of the tide.

1642. You said that the inner wall, being protected, is much steeper in the slope than the outer sea wall; the inner slope is land locked?—Yes.

1643. Since the commencement of the works, has there been any serious breaking away and destruction of the stages not filled in with stone before the storms came, equal to that which has occurred at Holyhead?—The destruction and loss of stage at Portland, I know, has been very slight as compared with Holyhead.

1644. When the contract was first made with Messrs. Rigby, was there any period of time named for the completion of the work?—As regards the inclined planes, there was.

1645. But was there any period named for the completion of the breakwater?—Their contract was not for any quantity of the breakwater, nor for any time; their contract was to construct so much of the stage as the Admiralty might think proper to order, with a view to put the work in a condition for the rapid delivery of the stone when the convicts were in a position to be sent into the quarries.

1646. Are you of opinion that convict labour is applied to the utmost extent to which it could be applied, with safety and profit, in making that breakwater?—I think so; I know that a convict is much more profitably employed when he is doing that which requires simple physical strength, than when he is employed in that which requires skilled labour. We find, even with regard to quarrying the stone, that it varies very much, according to the proportion of new convicts that we have, as compared with the number of old convicts. That was made apparent in the earlier stages of the work, when the convicts were removed, sometimes largely, within the space of three months.

1647. Has

1647. Has there been any alteration in the original plan as to the extent and the cost in the progress of the work?—As to the extent, there has been no alteration. A slight difference has been made in the form of the outer breakwater, but the point of termination is quite the same.

1648. How long will it take you to arrive at the original point of termination, as laid down at the present rate of working?—I should say about four years.

1649. What is the depth of water that the breakwater-head is to be in when completed?—About nine fathoms.

1650. What number of acres would be protected by that?—Two thousand one hundred and seven, up to low-water line.

1651. Have you kept any table of the number of vessels, and the extent of tonnage, that have made use of the breakwater for the last four years?—Not of the extent of tonnage; I have of the number of vessels.

1652. Has it been increasing considerably?—It has varied. There has been no great increase in the number, but in the size of the vessels there has been a very material alteration; and vessels put in now with heavy gales of wind from the eastward, which they never dared to do before. I am given to understand that Messrs. Somes had, prior to the construction of the breakwater, prohibited their vessels from coming into Portland Roads: it was a very dangerous place in easterly gales. If vessels came in with a south-west wind, and the wind went round to the eastward, they were caught upon a lee shore. Now we have a large number of vessels coming in.

1653. What will be the extent of anchorage-ground when the breakwater is completed, that large vessels can make use of?—We shall have about 1,300 acres in which line-of-battle ships can float. The proportionate area of deep water is very large at Portland.

1654. Under the terms of the contract, no cost can come upon the country for losses to the contractor by not obtaining material from the convicts?—No, none whatever.

1655. *Chairman.*] But the price that is paid is higher in proportion to the smallness of the quantity delivered?—It is.

1656. Mr. *Augustus Smith.*] Can you state what is the difference geologically between the formation of the stones used at Portland and the stones used at Holyhead?—The stone used at Portland is the upper oolite; the stone used at Holyhead is the chlorite schist, the lower or primary formation.

1657. What is the difference of the chemical action or otherwise of the sea upon those different stones?—I do not believe that there is any chemical action whatever on either of those stones. As far as mechanical action is concerned, the Holyhead, I think, could better resist it than the Portland; it is harder.

1658. As to the settlement of the materials, which has the superiority?—Not being in possession of the facts as to Holyhead I am not prepared to speak exactly of my own knowledge upon that subject, but I understood from Mr. Rendel that the solidity of the mass was much the same.

1659. Are either of them liable to be affected by marine animals?—Neither, at Holyhead, I should say, certainly not; and I do not think at Portland.

1660. The stone used for the breakwater at Plymouth is liable to that?—Yes, it is bored by the pholas.

1661. Neither the Holyhead nor the Portland are?—No; I should state that Professor Buckland gave it as his most decided opinion that the Portland stone was the only stone containing any per centage of lime not bored by the pholas.

1662. Have you examined the Plymouth breakwater at all lately?—Not of late years; I believe that the boring is not to any great extent.

1663. With regard to the cost at Dover, can you give any idea what the cost really is, either per cubic foot or per yard?—I cannot; I do not know what the cost per lineal yard is, which would be the best mode of comparison; by the cubic yard would not be a good mode. The cubic contents of a yard forward, of the breakwater at Portland, is perhaps four or five times that of Dover, in consequence of the spread; therefore the proper comparison would be per yard lineal, always of course in the same depth of water.

1664. Do you know anything about their having considerable difficulty at Dover, in obtaining the proper materials for forming those blocks of concrete?—I am not aware that there is any difficulty; they were made from the shingle some time since, and I fancy that there has been always an ample supply; in fact, the quantity of shingle travelling on that part of the coast is considered one of the difficulties that they have to deal with.

 1665. What

J. Coode, Esq., C. E.

22 July 1857.

1665. What is your opinion with regard to Dover; do you suppose that the chalk could not have been in some measure used for the centre part in the shape of a breakwater, instead of a pier?—I think not; there are very few beds in the chalk formation that are really applicable to such a work, and in order to obtain those beds you would have had to remove so large a quantity that would have been useless, that it would have been very bad economy.

1666. I speak only of the interior?—There, there would probably be a chemical action.

1667. What would be the action?—I take it rather a solvent action.

1668. Mr. *Hassard.*] By commencing your vertical walls in 12 feet below low water, do you not avoid all disturbance of the slope foundation?—Not in all cases; 12 feet will suffice in some cases; in others you must resort to 15 feet: 12 feet is the average.

1669. In fact, a disturbance generally takes place where the wash of the water acts?—Yes; generally speaking, there is very little disturbance below that depth.

1670. Where the wall springs from low water, is not the foundation often disturbed then by the wash of the water?—That will always depend upon the amount of material that you have in advance of the wall; if you have a good broad foreshore, as at Portland, there ought to be no material disturbance of the masonry.

1671. I speak of the foundation?—No; the masses of the work will not be disturbed.

1672. If the wall springs still higher, and the slope is carried up to high-water mark, is it not very much exposed then?—Yes, very much.

1673. Where the material was not on the spot, but had to be brought from a distance, if the system of building from 12 to 15 feet below low-water mark were adopted, might not that rubble foundation be laid by the ship that brought it?—It would be quite possible to do so; but in such a case, the question of the precise mode of construction, as between vertical walls springing entirely from the bottom, and vertical walls springing from the rubble deposit, must be entirely guided by local circumstances. It may be very much cheaper, as at Dover, to build as they now do, direct from the bottom; and in other cases it may be more economical first of all to deposit a mass of rubble, and then to build from that.

1674. If it was found advisable to build from a rubble foundation, by beginning at 12 or 15 feet below low-water mark, that rubble foundation could be laid by the vessel which carried the material?—That is quite possible.

1675. Have you had any experience in submarine blasting?—No, we have had no submarine blasting at Portland.

1676. Have you had any experience of it generally?—No; I have had a great deal of experience of work by divers under water at great depths.

1677. I wished to ask you a question with relation to the removal of a half-tide rock at a considerable distance off the land; have you any experience in such an operation?—Not in actual blasting operations, but in operations by divers in all depths of water I have; I have been down myself frequently in 30 and 40 feet, sometimes 70 feet.

1678. Would there be any difficulty in removing a half-tide rock, if not of very large dimensions, lying half a mile off the land?—It would be simply a question of cost.

1679. There would be no physical difficulty?—No, it would be a simple question of cost. Abour a fortnight since our divers went down, and cut off some iron rods of an inch and three quarters diameter, with a saw, just like what you would see in a blacksmith's shop; they cut them as clean as a blacksmith would in a vice; I mention that to show what a diver, with a helmet, can do under water.

1680. Was that in an exposed situation?—Not very; but in that depth of water a little movement does not matter. Our divers have been down and cut off piles.

1681. I allude to a particular rock upon which there is now a light-ship stationed, and if that rock were blasted the light-ship could be placed on the shore; would there be any difficulty in blasting that rock, which is 12 miles off the shore, the rock being dry at half-tide?—There would be no difficulty whatever; it would not be, perhaps, so bad as the circumstances under which the

Eddystone

Eddystone Lighthouse was founded; that was very similar. There the rock was not only level, but benched; it was 14 miles from the shore.

1682. I speak of removing the rock?—The benching and stepping, as it is called, is a more critical and longer operation than simply removing.

1683. Lord *John Hay.*] I understood you to say that it was not necessary to build more than 15 feet below low water, because the water did not break below that; that the action of the sea was not sufficiently strong?—I consider that walls founded at that depth would be amply secure against any sea; the proportion of masonry must depend upon circumstances, but at that depth, I consider that any masonry wall would be quite secure.

1684. To what depth does the sea act with force?—I do not know any case in which the water acts with great force beyond a depth of about 15 or 18 feet; the water does act to some extent, and in some cases to the depth of something like eight fathoms.

1685. Do you think that if the water comes in in the shape of rollers or breakers it may be considered to be acting then with force?—Not at any great depth.

1686. Supposing that at a great depth the sea should come in the form of breakers?—Even then I do not think that there would be any action which would remove stones of any size below 18 feet.

1687. Supposing the sea was breaking in eight fathoms of water in absolute breakers, do you consider that it would require greater strength to resist it?—No, I think not, because we have 10 fathoms in some portion of our work at Portland; some portion is deposited in 10 fathoms of water, and the sea breaks very heavily outside, but I do not find the slopes disturbed below 15 feet as the extreme.

1688. I do not allude to the upper surface of the water breaking, as in the open sea, but breaking in absolute rollers?—Yes, the sea there breaks in the offing; the most exposed part of our breakwater is in about 10½ fathoms, and in a heavy south-east gale the whole bay is a mass of breakers; still there is no disturbance below the depth of about 15 feet; that is about the extreme depth which the material of the breakwater is moved.

1689. With regard to the convict labour, you give a very poor description of what the convicts can do; do you suppose that they do as much as they can do, that they could not be made to do more?—I do not know whether any stimulus could be applied.

1690. Do you think that they work as hard as they might do, or have they an easy time of it?—They might do more, undoubtedly; there has been an alteration recently; the quantities have been rather more within the last month than they had been before.

1691. How many hours a day do they work?—In summer we get about 9 hours and 20 minutes' work from them; in the winter it will vary, according to circumstances, about seven hours.

1692. Do you think that they are in a good state of discipline?—Generally, they are in a very good state of discipline.

1693. Are they respectful to their officers?—Yes; generally very much so.

1694. Is the removal of the convicts, to which you alluded as the reason of their not being efficient, in consequence of their sentences having expired?—Yes; in some cases in consequence of their sentences having expired, and in other cases again, from their being removed to the colonies; some have been sent to Bermuda, and some occasionally to Gibraltar, but not of late years to any extent.

1695. What was the object of their being sent away?—At Gibraltar they are performing some work connected with the quays there; I am not quite aware what it is.

1696. Has the objection to removing them in that way been represented to the authorities?—Yes; they are, perhaps, more efficient men when they get to the colonies, although Portland may suffer from the frequent change.

1697. Lord *Adolphus Vane Tempest.*] Your opinion is somewhat unfavourable to the principle of employing convict labour?—As far as regards cost; my opinion is not unfavourable, further than this, that I have yet to learn that the Admiralty, who are constructing the work at Portland, are deriving any benefit in point of cost by employing convict labour; and I think that that question is so close that it will hinge upon the time that may be occupied in completing that work, and the value of the plant when done with.

J. Coode, Esq., C.E.

22 July 1857.

1698. Is not the value of the labour done by the convict estimated at a certain amount?—Yes, by the directors of the convict prisons.

1699. Am I not correct in saying that, in round numbers, for the last year, the supposed cost for the keep of the convicts was some 40,000*l.*, and the value of the work estimated to be done by them was, in round numbers, some 36,000*l.*, leaving a balance of the cost of the prisoners of some 4,000*l.*?—As well as my memory serves me, that is the general state of the case as set down by the directors of the convict prisons.

1700. With a result of that sort, showing the sum alleged to be made by the prisoners' labour, as against the expense of the maintenance of the prisoners, how is it that, in your opinion, it is not an economic or a remunerative principle to the country, to employ their convicts in works of that description?—The difference will arise from the amount at which the value of the prisoners' labour is set down. If the value of the prisoners' labour is set down at too high a rate, of course the comparison will scarcely be a correct one. The rate per ton at which the prisoners do this work may be set down too high, and I think it is set down too high.

1701. But that would only affect the amount alleged to be made by convict labour; it would not affect the principle that convict labour employed in works of that description must reduce the cost of the maintenance of those convicts to the country?—As far as the cost is concerned, that is a matter which affects the Home Department; what their costs are I do not know. I speak only of my own knowledge as to the cost of the work to the Admiralty. The payments made by the Admiralty are just about (when the work is done by convict labour) what they would be if it were done by free labour. There is very little difference.

1702. But the Government received no money at all from the convicts at Millbank to pay for their maintenance; and is not the principle adopted at Portland more economical to the Government, and more remunerative to the country, on the principle of making the convicts work for their maintenance?—As far as regards the earning of the convict, I do not think so, considering that the Admiralty have to pay much the same amount in the case of convict labour at Portland as they would in the case of free labour. The total charges to the Admiralty are not very much short by convict labour of what they would be by free labour. The difference is absorbed by indirect charges.

1703. Is not it the case, that, according to Colonel Jebb's Report in 1852, 1853 and 1854, the amount produced by convict labour was in excess of the amount paid for the maintenance of the convicts according to the estimate of the value of the labour?—I think so; but that depends upon whether the estimate is an accurate one.

1704. That would affect the amount of the estimate?—Yes.

1705. Mr. *A. Smith.*] I thought I understood, from what you stated previously, in reference to convict labour, that the reason why it was not actually remunerative at Portland was, because the number of the convicts was not sufficient to supply a certain quantity of stone within a certain time in proportion to the expense of the establishment which was obliged to be maintained for the superintendence of the work?—Yes.

1706. Therefore if the number of the convicts was increased by about one-third more, or half as many again, then the turn would be in favour of convict labour?—Yes, a little increase would turn the scale in favour of convict labour. An increase in the quantity, whether by an increase in the establishment or by an increase in the quantity of the work each man may perform, will all go to turn the scale more decidedly in favour of convict labour.

1707. *Chairman.*] When you give the value of the convict labour you do not include any wages except the 6*d.* per day?—None whatever.

1708. Mr. *Liddell.*] You have stated that in laying the rubble foundations of these breakwaters, it is your invariable practice to allow a certain period, three or four or five years, to elapse before you commence constructing the masonry work upon the top; do you find that the action of the sea upon the loose material is so regular that you can calculate precisely what form the rubble foundation will assume?—Yes; the action of the sea is so uniform, and the slopes are so regular, that I can tell what the quantity, yard for yard, will be for that breakwater that will be consumed. In explaining the time that must necessarily elapse, I should say it is not necessary to wait any time where the rough deposit is stopped at a depth below low water, such as 12 or 15 feet; if the material

material is brought up regularly, and with some little precaution, you may begin to build immediately. We did so with regard to those heads which are founded 24 feet under low water; we completed our deposits, if I remember right, in January or February, and commenced to build in May.

1709. Does not the action of the sea, to which I have referred, depend a good deal upon the flow of the tide and the currents in particular localities?—Not the depth at which the sea will move, it depends upon the amount of exposure, and the depth of water in the offing.

1710. Does not the power of the waves depend considerably upon the expanse which they traverse?—It depends on what is technically called the fetch, that is, the distance the wind traverses from any shore.

1711. If that be so, you cannot expect to find the power of the sea so strong in any portion of the channel as upon a coast exposed to the whole sweep of the Atlantic, or even the North Sea?—No, that is the case; the stroke of the sea upon any work or shore will depend mainly upon the fetch, that is, the distance from any protecting shore, and also, to some extent, upon the depth of the water immediately outside; if the water is comparatively shoal, the force of the wave is broken before it falls upon any shore or beach, but if the water is very deep outside, then the wave falls in with unbroken fury.

1712. Consequently the power of the sea where the water runs rapid and deep is much greater than where it gradually shelves up towards the shore?—Yes.

1713. You have stated that the action of the wave usually ceases at about 12 feet below low water-mark?—Any material action ceases below that depth; but there is an action generally with us down to about 15 feet at the deepest, but 12 feet may be taken as an average.

1714. You are now speaking of experience derived from the channel?—Yes.

1715. Would that calculation be true in cases where the coast was exposed to a much greater expanse of sea?—No, not strictly true; according to the amount of exposure so would be the depth at which that action would take place.

1716. What is the nature of the bottom on which the foundation of the Portland breakwater rests?—It is a stiff clay, the Kimmeridge clay, with occasional shales in it.

1717. Has your attention ever been directed to a proposition, or a scheme, perhaps, I may call it, of Captain Veitch's, for fixing moveable sands?—I cannot say that my attention has been particularly directed to it; I am just simply aware of the fact that he did make such a proposal some years since.

1718. You have never studied the construction of what he calls a spinal embankment?—No, I have not.

1719. Supposing the action of the sea to be such as you have described, impelled from a great distance by the force of the wind, would you consider that a sand, even approaching to a shifting sand, was a safe foundation upon which to construct masonry work?—That would depend mainly upon the depth of the water, certainly not within any reasonable depth of water.

1720. What do you consider a reasonable depth of water?—I can state what I found with regard to the movement of shingle. Some few years since I made a very close examination of what is known as the Chisel Bank; it is an enormous mass of shingle found on the Dorsetshire coast; it is about 10 miles long, and stretches from Abbotsbury to Portland; it has the water on either side for the whole extent of those 10 miles; it was very doubtful as to what was the origin of this shingle bank, and how it came there. I undertook the examination of it, and in the course of that examination my attention was particularly directed to the state of things under water; in order to arrive at the facts, I went down in a diving dress several times, and I found that at Lyme Regis the shingle extended only into a depth of about six feet of water, and I ascertained as I came to the eastward that that depth very much increased until I arrived at Portland, and there I found the shingle in eight fathoms water, and so confuted what was the generally received theory as to the depth at which shingle would move. It had been always said that shingle even would not move in any depth greater than, some said two fathoms, some said three, but 20 feet was considered as the maximum; however, I proved by my own ocular observation, and by dredging samples, that at Portland this shingle would move to the extent of even eight fathoms.

J. Coode, Esq., C.E.

22 July 1857.

1721. Portland being the greatest depth to which you conducted your experiments?—Yes, but beyond that there was no shingle; there were peculiar circumstances that caused the shingle to stop there; that is beside the present question. But what I wish to explain is, that the greatest depth at which I found any shingle was eight fathoms, and that depth varies according to the exposure of the shore and the depth of water in the offing, therefore I should be very chary of saying that a sand would be firm at any depth short of that, if the exposure were very great; I should add, that the movement of the shingle there was very rare indeed; it was only during the heaviest winter gales that the shingle moved. It may be asked, How is that to be proved? To this I answer that in examining that beach under water, always be it borne in mind at the end of the summer, below a certain depth I found the shingle undergrown with barnacles, but on going there in the spring of the year, and after the winter gales, I found the shingles scoured clean; the barnacles were entirely removed, which I think is the strongest possible proof that a movement had taken place at that depth.

1722. Would you have considered yourself justified in recommending the construction of a rubble stone foundation upon any portion of that shingle bank which you have just described; do you think that it would have been safe?—Yes; you might put a rubble foundation, not upon the bank itself, but upon some portion of that shingle under water; because, although the water had power to move the small shingle, it would not have power to move large masses of stone.

1723. The effect of large masses of stone would be to consolidate and form a solid foundation out of what would otherwise have been moveable?—Yes; it must be borne in mind that this was very large shingle, and that the movement was only during the heaviest winter gales. With regard to the action of the wave, it is a curious fact, that it did extend to a certain depth and no farther; I have been able to stand with one foot entirely on the shingle, and with the other foot entirely on the sand; the line of separation was so well defined.

1724. Has your attention ever been directed to the subject of floating breakwaters?—Generally, it has; I have considered the subject.

1725. Has a plan ever been submitted to you for consideration, by which a breakwater being constructed upon strong pontoons of heavy planking, one end being submerged at a sufficient depth to be out of the reach of the action of the waves, and the other being cased in order to allow the wave to break over it on the other side?—I am aware that such a proposal has been made.

1726. What is your opinion as to the efficacy of such a construction as that?—Always supposing the pontoons were sufficiently deep, it certainly would exclude the action of the sea; but the cost, I think, would be as great as that of a fixed breakwater, with this very great disadvantage, that if any portion of that breakwater happened to break loose, woe betide the vessels riding under the lee of it; they must necessarily be destroyed.

1727. When you say that the cost would be equal to that of a rubble and mason work breakwater; how do you make that out?—Because, I think, in the first place, the structure itself must be so strong, and that the moorings by which you propose to hold it must also be so strong and so numerous and costly in character, that the appliances will make it as costly as that of a fixed breakwater, and the expense of maintenance would be very, very much greater.

1728. Would not a construction, such as you have stated, be, to a certain degree, self supporting; would not the operation of a wave, added to the buoyancy of the construction itself, act so as to keep it in its place?—No, I think not; the strain upon the mooring would be in proportion to the surface exposed to the wind and sea.

1729. Speaking of these works as national defences; might not powerful batteries be erected upon these breakwaters in case of necessity?—Certainly.

1730. Has it been taken into calculation what the effect of the concussion might be upon the mason work if they were so used?—It is a matter I have never considered, because any structure of that sort would necessarily fall under the Ordnance or War Department; but as regards the masonry itself, I think our masonry is solid enough to stand anything.

1731. Has it been contemplated that they might be applied to those purposes?—No doubt defences might be constructed upon a breakwater; in fact, there is some idea of putting a fort upon the outer breakwater at Portland.

1732. And a very small amount of stonework would protect the guns?—Yes;

at

at Cherbourg there are three forts upon the breakwater, one at each end, and one in the middle, and they propose to mount 300 guns there.

1733. To a properly constructed breakwater that might be applied anywhere?—Yes.

1734. Mr. *Kendall.*] Your opinion, as to the value of convict labour, is based entirely upon the system now pursued at Portland?—Yes.

1735. You did not mean to say that it is impossible that convict labour might be made profitable under another system?—No; under other circumstances, if the quantities were larger.

1736. Are you aware whether the convicts are classified before they are sent down, or are they sent down without reference to their physical strength or health?—I am not aware what rule obtains just now; but I am aware that that rule was adopted when we first commenced our operations at Portland, and some attention, I believe, is paid to it now.

1737. Taking the mass of men generally that you see there, are they on the whole men fitted for the work they have to perform, as to actual physical strength?—I think, as far as the class of men from which convicts are obtained generally, they are well fitted; of course, we cannot expect any large proportion of strong able-bodied men.

1738. You attribute, in a great measure, the comparative small value of their labour to their want of skill?—Yes.

1739. And also to their want of will?—Yes; you cannot operate upon a man in such a position as you can upon a free man, working for his daily bread.

1740. What check have the overseers over them in case they do shirk work?—With regard to each particular man it is only observation, but as to the quantity done by each party there is a very admirable check; every waggon is weighed before it goes to the breakwater, and the man in charge of each party fills up a ticket, with the serial number of the waggon he sends out during the day, and by applying the tonnage sent out during the day to the number of his party, the superior officer can readily ascertain what has been done; but as regards the individual, it can only be done by the personal observation of the officer in charge.

1741. Suppose some men are found who are day after day lingerers, how do you manage?—Such a man is reported; and they lately have adopted the plan, as I understand (but not being in the department connected with it, I cannot speak from actual observation), that if a man is habitually lazy he gets put upon bread and water, and if he still persists he is put in separate confinement.

1742. Is there any encouragement for good behaviour?—There is a slight encouragement to the men in the shape of an additional ration of some kind.

1743. How is the contractor paid?—By scheduled rates.

1744. Of course he is paid very much higher than he would have been if he were able to calculate upon a certain quantity of labour and material?—When the quantity is small it must be so.

1745. Have you had any means of ascertaining what loss is occasioned to the country by the contractor not having a regular supply of material to carry out his work?—As far as experience goes at present, I think that there is very little profit or loss either way; we are just about that point in the scale where the two are pretty evenly balanced, and I think the result will rather depend upon the period that may be occupied in completing the works from this time than upon what has passed; if our quantities keep well up to what they are at the present time, and we add the quantities we are now raising by means of free labour, the scale will be turned in favour of convict labour decidedly.

1746. What per-centage do you think the Government now pay more than they would have paid could they have guaranteed to the contractor a certain supply equal to his want, every day?—It is difficult to say exactly; I should think about a third or a fourth; but then again they pay less for the convict labour, and less for certain portions of the work, and the two about balance each other; but taking that single fact, it is about the point I named.

1747. With regard to the great value of filling up the interstices of the small stones, is it the action of the water, or merely the action of the stones as a sort of wedge?—The action is in both ways; the stones cause the sea to roll over the surface, instead of the water surrounding the stone.

J. Coode, Esq., C.E.

22 July 1857.

1748. The value of these small rubble stones must therefore depend upon the nature of the stone if it acts as a wedge?—Yes, to some extent.

1749. With regard to Wick, where it is red sandstone, how would it act there?—The beds are very hard, quite as hard as at Portland.

1750. You made the calculation upon the information which you received as to the old red sandstone; does it vary much as to its hardness, and the difficulty of raising, or is it pretty even?—It is generally pretty even; of course there will be minor variations.

1751. But not to any amount so as to make your calculation incorrect?—No, I think not.

1752. Lord *Naas*.] How many convicts are there employed at Portland?—On the breakwater quarries, about 940 is our present average; the number on the establishment is much larger; about 1,500.

1753. Could you conveniently employ a great many more; would there be room for them?—Not very conveniently; we have a very large extent of quarry face now; we could not employ many more conveniently.

1754. Could you, with advantage, employ a sufficient number of convicts to supply the 3,000 tons a day that you stated was necessary to keep the works going?—Perhaps at this moment we could not, but in about three months from this time I think we might; we are about opening some further extent of quarry face.

1755. You stated that the country does not save by employing these men?—It is questionable, just at this moment.

1756. Hitherto there has been no saving?—If anything it is very small indeed; of course the Committee will understand that the saving must be determined by the time, and the value of the plant when done with; where there is such a large plant occupied, the saving will hinge in some measure upon the value of that plant when done with; therefore, one is scarcely competent to pronounce at this moment what the result will be.

1757. Therefore, it would be very difficult to solve absolutely this question as to the value of convict labour as applied to Portland till the works are finished?—Yes.

1758. Do you think it will be possible when the works are closed to make such a calculation with regard to convict labour as to set the question at rest?—Yes, undoubtedly; and I think the quantities will be so increased before the completion of the work, that it will decidedly turn the scale in favour of convict labour.

1759. Are you now combining free labour with convict labour, for the same purposes; are you at all employing free men in quarrying in similar works with the convicts?—Yes, we are.

1760. Within the same area?—No, not within the same area; at some distance from the convicts.

1761. Has that been done with success?—That is only just now being developed.

1762. Can you tell the Committee what was the original estimate for Portland Breakwater?—The original estimate for the rough deposit, and the construction of the three heads, without the masonry superstructure, was 558,959 *l.*; 560,000 *l.*, in round numbers.

1763. Was there no estimate originally made for the cost of the whole work?—Not for the cost of the superstructure; that was not at all included in the original estimate, and that estimate did not include land.

1764. Has the work for which the original estimate was drawn up been completed?—No; because the original estimate contemplated a breakwater to the full extent, as indicated upon the chart.

1765. And that is not going to be done?—It will not be done for the next four years.

1766. As far as you can tell, from the progress of the work, what do you think will be the cost of the rough stone work originally estimated at 558,000*l.*?—About 634,000 *l.* I should add, that that estimate was made upon a chart which was furnished to Mr. Rendel, in order to lay down his design; and it appears that the water is somewhat deeper. We found, as we proceeded, when an accurate survey came to be made, that the water was somewhat deeper, which has increased the quantities very materially; that is one cause why this 558,000*l.* becomes 634,000*l.*

1767. Were

1767. Were not accurate surveys made, and soundings taken, before the work was estimated for?—The chart handed to him was considered to be accurate, but along the line of the breakwater there is about a fathom more water.

1768. Is that additional depth sufficient to account for the increase of the estimate by a fifth?—Then there is the prolongation of the works, which will be something like five years, so that the whole establishment has to be paid for during that time, for this estimate was founded upon a free labour basis, and the works would have been completed by this time if free labour only had been employed.

1769. Can you give the Committee any idea of the cost which those two circumstances have occasioned; that is, the increased depth of the water, owing to the inaccuracy of the chart, and the loss from the works being prolonged by the employment of convict labour?—The Committee will find the whole set forth in the Appendix to the Quarterly Reports upon the Harbours of Refuge, just published.

1770. You say that there was no estimate originally made for the masonry work?—Not for the superstructure of masonry upon the breakwater; it consisted of the rough deposit, and of the masonry for the circular heads.

1771. Was it originally intended not to have masonry work?—It was originally intended not to have masonry work on the inner breakwater.

1772. What is the intention now?—The intention now is to have masonry work along the inner breakwater (it is in a very forward state), and to construct coaling wharfs under the shelter of it.

1773. And what will be the cost of that work in addition to the sum of 634,000*l.* which you have already stated?—That is all set forth in the Appendix to which I have referred.

1774. Mr. *Dodson.*] I think you stated that the number of convicts employed by you varied very much at different times?—It has varied very much; latterly the variation has been slight; it has ranged from 920 to 960, and sometimes about 1,000.

1775. Do you mean within the last year?—Within the last year we have not had much variation.

1776. Within what limits has the number varied since you have been employed there; has it varied by one-third?—Yes.

1777. Has it varied by one-half?—Not since the full establishment has been completed; but the establishment has grown from time to time; it has been added to. We have had, within the last year, numbers varying from 830 to about 980; that has been the variation within the last year.

1778. Could you tell what per-centage of new men you get every year?—I have no means of knowing how often they are moved.

1779. That does not come within your department?—It does not.

1780. Are we to understand from the answer which you just now gave, that chalk is not at all available for the construction of breakwaters?—Very little. It is a very destructive material, and there are very few beds of the chalk formation that I should consider at all applicable to breakwaters.

1781. Is that on account of the solvent action?—Yes; and the soft character of the material itself.

1782. Is sandstone available?—Some of the beds of the old red sandstone; the greater part is admirable. If the sandstone be at all siliceous, it is a very good material.

1783. Are you acquainted generally with the coast?—With the coast below the Isle of Wight; Dorsetshire, Devonshire and Cornwall.

1784. And the east?—The eastward I do not know.

1785. Sir *Frederick Smith.*] You are acquainted with the coast of Cornwall?—Yes.

1786. You are a native of that part?—Yes.

1787. Can you give the Committee an opinion with regard to St. Ives as a harbour of refuge?—It would be a very desirable object for that channel to have a harbour of refuge there; it is almost without a harbour, and a very dangerous coast it is.

1788. Would it be difficult of construction?—I should think not.

1789. What depth of water would you get for vessels of large tonnage?—I think about five or six fathoms, readily.

J. Coode, Esq., C.E.

22 July 1857.

1790. Would it be a harbour of great capacity?—Yes, a harbour of great capacity might be got there.

1791. Would it be a costly construction?—I think not; certainly not more than ordinarily so,

1792. You have materials upon the spot?—Yes, close.

1793. Do you know anything of Padstow?—I have a very slight knowledge of Padstow from my personal knowledge.

1794. It would be more difficult to form a harbour there?—Yes, from the sands; they are a great obstacle.

1795. Have you any knowledge of Penzance Bay?—Yes.

1796. Would it be easy to construct a harbour of refuge there?—Yes, I think very.

1797. Would it be of great value?—Yes; looking at its position with reference to the Land's End, the English Channel and the Bristol Channel, it would be a very valuable point; so many vessels make the Lizard as the first land coming home.

1798. You think that they would both be useful and of national importance?—They would both be very valuable points for the construction of such harbours.

1799. Are you at all aware of the cost of convict labour as compared with free labour at Bermuda?—No, I am not.

1800. I have been informed that the cost of free labour is as 1 *s.*, and the cost of convict labour as 1 *d.*?—I have no means of judging, it would so entirely depend upon the local value of free labour.

1801. You have never heard that?—No.

1802. It is found at Portsmouth that the cost of free labour is two to one as regards convict labour?—That may very well be in any ordinary operation, when you are not exposed to risk as we are at Portland; and where the plant and establishment is not of a large and necessarily costly character the convict labour may be cheaper.

1803. In rather unfavourable states of the weather, are not the convicts withdrawn from their labour when the hired labour continues?—Yes, in foggy weather they are withdrawn for a whole day, or a half, or three quarters of a day, as the case may be.

1804. Does that partly account for the extra cost of their labour?—Yes.

1805. You mentioned that 6 *d.* per man per week was allowed to the convict warders for their trouble?—Yes, the sum of 6 *d.* per week per man is allowed by the Admiralty to the convict department.

1806. Upon how many men would that be?—Not only upon the 950 men that we have employed, but upon one-fifth additional for the non-effective force. It is considered that the Admiralty should bear their share of the non-effective force of the prison.

1807. To how many warders would that gratuity apply?—They have somewhere about 80 warders in the quarries; there are, on the average, about 35 or 40 parties of prisoners, and each party has two warders; thus there are from 70 to 80 warders; some of the principal officers, who are divisional warders, partake to some extent in this amount, but this is paid by the Admiralty to the convict department in one sum, to be dealt with as they think best.

1808. You mentioned that some of the convicts were men of infirm constitution, are not all the most infirm men kept at Dartmoor?—I am not aware of that; I do not think I said infirm; I think they are not strong men.

1809. Mr. *Kendall.*] In offering an opinion as to St. Ives, you are not prepared to say that a harbour there is preferable to a harbour at Penzance or Padstow?—No, certainly not; all that I mean to say is, that they are both points at which harbours of refuge might be very well constructed.

1810. You offer no opinion as to the relative advantages of St. Ives, Padstow, or Penzance?—No.

1811. Mr. *Liddell.*] Is wood always liable to injury from marine insects?—Yes, it is; and at Portland, where we are uncertain as to the period at which the works may be in construction, that is, the period for which the piles will have to remain in, we creosote the piles with the very object of keeping off the worm.

1812. Which very much adds to the cost?—It does.

1813. Mr. *Clay.*] Do you find that the casualties from carelessness in blastings,

ings, such as broken and fractured limbs, are much more frequent with the convicts, from their not being used to the work, than with the ordinary labourers?—They are not more frequent, certainly, for one or two reasons; in the first place, the convicts are particularly careful, and the authorities demand for their use plant of the best possible kind; and, in the second place, the rock, from being stratified, is easily raised; it can be raised and got out in steps, which very much diminishes the danger to the men employed; and I do not consider, having regard to the character of the rock, that there are more accidents arising to the convicts than to free men, perhaps not so many; for I think the free man, from his experience, and from his being accustomed to the kind of work, becomes a little more venturesome, perhaps fool-hardy at times, and incurs greater risks than he need.

1814. You have no reason to imagine that it is at all a common practice to create accidents in order to procure an earlier ticket of leave?—Not a common practice, certainly; I should add, that owing to the character of the rock, it being stratified, the amount of blasting is not great, and by a careful arrangement, we are enabled to blast almost the whole of the charges when the convicts are out of the quarries; when first we commenced, the blasting was resorted to on rather a large scale, much more than I liked or thought necessary, and not only were one or two parties withdrawn in the immediate neighbourhood of those blasts, but, in order to avoid risk to the prisoners, the parties were withdrawn a very long distance right and left: consequently, the delay that arose was very great; it was not simply the time that the men were absent from the quarry faces, but a very long time elapsed before the men got into work again.

1815. *Chairman.*] I think you stated that, originally, it was not intended that there should be any mason work along the line of the breakwater, exce the heads?—Yes.

1816. And you stated that there has been masonry work resorted to for the inner breakwater?—Yes.

1817. But that has no reference, has it, to the character of the works as a breakwater, but for another purpose altogether, that of supplying coal wharfs for vessels taking in coal?—That is so.

1818. Therefore the stone work applied to the inner breakwater now has nothing whatever to do with the construction of the works for the purpose of a breakwater?—Nothing whatever; for it yet remains to be seen whether masonry will be necessary to protect the outer breakwater. So far as I can judge at present, I feel that none will be necessary.

1819. So far as regards the masonry work for the inner breakwater, that has nothing whatever to do with the original estimate?—No.

1820. And any additional estimate caused by that could not be ascribed to any error in the original estimate?—Certainly not.

1821. When you stated that it would require 630,000 *l.* to complete the works, did that include masonry work?—No.

1822. Mr. *M'Cartney.*] Who is the resident superintendent of convicts?—Captain Clay.

1823. And the clerk of the works is Mr. Dallas?—Yes.

1824. Lord *Naas.*] If it is necessary to face the outer breakwater with masonry, will that cause very great additional expense?—Yes, if it should be necessary; but I doubt very much whether it will, so far as regards securing the breakwater.

1825. You could hardly tell the Committee what proportion the cost of rubble work for facing the masonry would bear?—If I take the inner harbour as a guide, it would be perhaps about a third more, but at present I do not at all anticipate that casing will be necessary, or that masonry will be necessary, to secure the rough deposit of the outer breakwater.

1826. That is, the masonry work will cost about a third of the rubble stone?—If resorted to; but if resorted to, it will not be for the purpose of a breakwater, but rather for the requirements of the harbour, in order to construct wharfs.

1827. Are you aware that at Holyhead, in Mr. Rendel's original plan, he said that it was necessary to face the seaward side of the great pier there with masonry?—I am not aware of that.

J. Coode, Esq., C.E.

22 July 1857.

1828. That is stated; can you give us any reason why it should be necessary at Holyhead, and not at Portsmouth?—There is a great exposure at Holyhead, and the tides run strong there; that makes a great difference.

1829. When will you be able to decide the great question whether masonry work will be necessary?—I should think two more winters will decide that question.

1830. At present you are in hopes that none will be requisite?—Yes.

1831. Sir *Frederick Smith.*] What circumstances would render that at all necessary?—A disturbance of the rough material by the sea.

1832. But you find none?—Nothing material. The sea is levelling it down, and bringing it to the slopes that we originally calculated upon.

1833. Mr. *Hassard.*] With regard to erecting a rubble breakwater upon a bank of shingle or sand, I understood you to say, that you thought it would secure itself by its own weight, if the stones were large; would not that depend upon the depth, and would not the shifting of the shingle endanger the stability of the breakwater?—That would depend upon the depth at which it was commenced, and also the strength of the tide, for it is possible that the shingle might be moved by the action of the tide as well as of the sea.

1834. And that would endanger the whole stability of the breakwater?—Yes.

Lunæ, 27° die Julii, 1857.

MEMBERS PRESENT:

Mr. Baring.	Mr. Kendall.
Mr. Dodson.	Mr. Macartney.
Mr. Ewart.	Mr. Augustus Smith.
Sir Robert Ferguson.	Lord Adolphus Vane Tempest.
Mr. John Henry Gurney.	Mr. Wilson.
Mr. Hassard.	Sir Frederick Smith.
Lord John Hay.	

JAMES WILSON, Esq., IN THE CHAIR.

Mr. *Edward Killwick Calver*, R.N., called in; and Examined.

Mr. *E. K. Calver*, R. N.

27 July 1857.

1835. *Chairman.*] WHAT position do you hold in connection with the Admiralty?—I am the Admiralty Surveyor for the east coast of England, but I am generally employed over the whole North Sea, from the Shetlands to the Thames, and the opposite coast.

1836. What were you before you had that appointment?—I have been continuously upon those coasts, from 1836 to the present time.

1837. You were a master in the navy?—Yes.

1838. And since 1836 you have held the situation of surveyor of the east coast of England?—I have been surveyor for part of the time, and assistant-surveyor at other times.

1839. You have recently been employed at Holyhead, have you not?—I have come from there now.

1840. You are at present engaged upon some service at Holyhead?—Yes, I am making a critical survey of the harbour to determine its present state, to be lodged on record as a document at the Admiralty.

1841. Is this the first time you have visited Holyhead?—Yes, I came there from Port Patrick; they are the only two ports that I know upon the west coast.

1842. Are you satisfied that the proceedings at Holyhead are going on satisfactorily?—They are going on very satisfactorily indeed.

1843. And the harbour gives every promise of being a very useful and excellent harbour?—When it is well known, I have not the least doubt it will be considered an inestimable advantage.

1844. The mode pursued in making that harbour is Mr. Rendel's invention, if I may so term it, of the stage plan?—It is.

1845. Have

1845. Have you seen that in operation before at any other place?—I never saw it before.

1846. Does it appear to you to be well calculated for the purpose of making a harbour?—Very well, indeed.

1847. It is very simple, is not it?—It is very simple, very rapid, and very certain.

1848. And it is a saving of time as well as of expense?—A saving of time expense, and casualties.

1849. How far have they proceeded with the works at Holyhead?—The large northern breakwater is complete in the main mass, and the extension within 400 or 500 feet of the end; the rubble is complete for that portion.

1850. Above high-water mark?—Above high-water mark springs.

1851. To within 400 or 500 feet of the end?—Yes.

1852. When you speak of the end, do you include the extension recently sanctioned?—The outer limit of the extension.

1853. The furthest extension?—The furthest extension.

1854. Are you able to form an opinion as to the value of the last extension which was sanctioned by the Treasury?—I think it doubles the value of the whole harbour, as far as I can form an opinion.

1855. Do you mean the extension of 500 feet?—I mean the extension from the corner; it is something very considerable.

1856. You do not mean the last extension sanctioned in the present spring?—No, I am not aware of that.

1857. But the entire extension from the original plan you think has doubled the value of the harbour?—Yes, I think so.

1858. Do you mean that it has doubled the area of water?—The protected water, when the harbour is required for refuge.

1859. Then, from what you observe at Holyhead, would you be disposed to recommend, in the construction of future harbours of refuge, the same mode of proceeding?—The same mode of building I think I should be prepared to recommend, from its advantages.

1860. What do you exactly mean by "building"?—I should not in all localities recommend a harbour projected upon that particular plan.

1861. I do not mean with regard to the construction of the harbour, but rather the mode of constructing the pier?—As regards that, it seems to me that it could not be improved.

1862. Is there any mason work at all upon the top of the rubble as laid down?—They are now forming a wall of masonry through the very summit of the breakwater, to act as a sort of back-bone; this is formed of rough rocks, as they are blasted from the quarry; they are brought down, set in mortar, and founded below low-water springs, in the very centre of the breakwater.

1863. Rough stones?—Rough stones, just as they are blasted from the quarry.

1864. Not hewn in any way?—Not at all; there has not been a pick upon them.

1865. They are of irregular shapes?—Yes, and of all sizes.

1866. Is there any danger whatever of the substrata of rubble shifting by the force of the sea?—I think without that back-bone, there would be; the breakwater would be liable to breach; if it was all of loose rubble a certain gale of wind, and a particularity of sea-stroke, might breach the breakwater.

1867. The breach would rather be near the surface of the breakwater than low down?—When it once begins to breach it would be breached right through from summit to base.

1868. Then you think that this superstructure is necessary to secure the rubble stone as it has been thrown into the sea?—I believe it to be entirely necessary.

1869. That description of work must be much less expensive than the ordinary squared works of which piers are built?—I should suppose so.

1870. Taking the whole construction of the breakwater, from the bottom of the sea to the top of the wall, the plan of throwing in this rubble stone in this manner must be much less expensive than building walls of masonry from the bottom?—Very much less.

1871. And quicker in execution?—Yes, and equally safe as to permanence, I think, in that locality.

Mr. *E. K. Calver*, R. N.

27 July 1857.

1872. Have you been to Portland?—I was there with the Refuge Commission in 1844, when they took evidence.

1873. You observed the construction of that harbour?—I have since, though I have never visited it since I went with the Commission.

1874. The same plan is followed at Portland as at Holyhead?—I believe it is.

1875. But you do not know much about it?—Not since 1844.

1876. Are you well acquainted with the east coast of England?—Yes.

1877. Are you satisfied that on the coasts of Norfolk and Suffolk, the natural refuge afforded by the Yarmouth Roads is a sufficient protection for that part of the coast?—I think they are amply sufficient.

1878. Is there anything that you would suggest by way of artificial works on that coast?—I should recommend none to be placed on that coast on account of the enormous mass of sand.

1879. It would be very difficult to construct any works there in consequence of the sand?—Yes, and very dangerous, for I found in the course of various surveys, that the whole body of sand is moving from north to south as a mass.

1880. You would not recommend any structure on that coast?—I should not recommend any structure on that coast,

1881. Do you know the east coast of Yorkshire, and Durham, and Northumberland well?—Intimately.

1882. In your opinion, are any works required on that coast for the purpose of securing harbours for seagoing vessels?—A harbour of refuge is urgently required at the head of Tees Bay; it is the head of the bight.

1883. Do you know a place on that coast called Newbiggin?—Yes, well.

1884. Where is Newbiggin situated?—About four miles north of Blyth, or about 11 miles north of the Tyne, in Northumberland.

1885. Is that a spot which presents much facility for a harbour?—No special facility to make it a place of remark.

1886. There is nothing particular at that point that will induce you to recommend the construction of a harbour there?—Nothing but what is possessed by other places around.

1887. So far as its geographical position is concerned, it would not be so central as some other places?—It would not.

1888. What is the point upon that part of the coast which you consider most central for refuge, and the best adapted for it?—Hartlepool Bay.

1889. You have no doubt, in recommending that point, as being the best adapted for a harbour of refuge?—I have no doubt whatever.

1890. Have you sufficiently examined the localities, to be able to form a distinct opinion as to the precise spot for a harbour?—I have made special surveys of every site at the head of Tees Bay, Hartlepool included.

1891. Sufficient to enable you to come to a conclusion at the present moment as to the best spot?—Quite.

1892. You speak of Hartlepool Bay as a whole?—Yes; the whole space being required to supply a harbour of refuge.

1893. What construction of harbour would you recommend there?—I should recommend a detached breakwater.

1894. Not one communicating with the shore on each side?—Having no connexion with the shore.

1895. Leaving an ingress and egress north and south?—Yes.

1896. So that there should be a constant scourge of water either way?—So that there should be no interference with the tide, and as little as necessary with the wave; in other words, to supply a protected anchorage, if I may so term it.

1897. In that case, with a south-easterly wind or a north-easterly wind you would have a very heavy sea inside the breakwater, would you not?—No; under these circumstances, two-thirds would be shaded or protected.

1898. Still you would have a strong current running through the harbour?—Yes; it would not interfere with the current in the smallest way.

1899. Do you think that an advantage?—It is imperatively necessary.

1900. In order to insure the suspension of material in the water, a current of that kind is rather an advantage than otherwise?—Yes. Observing in gales of wind, that the wave is charged even to the depth of 12 fathoms on the eastern coast of England, it is quite clear that to form there a close harbour of refuge would be a very dangerous experiment.

1901. By a close harbour of refuge, you mean a pier running from the south side to the northward, and from the north side to the southward?—Yes.

1902. With an opening in the centre?—Yes, with an opening in the centre.

1903. In that case it would be a still harbour, but one subject to be silted up by deposit of the material held in the water?—I am certain it would be silted up.

1904. If a harbour were constructed in that manner, you think that in a few years, unless very expensive dredging operations were constantly carried on, it would become insufficient for its purpose, by the deposit of solid matter of one sort or another?—Yes, it would. Hartlepool Bay at the present moment is shallowing, at least such was the result of a series of observations at certain intervals, even now, without any intercepting works; and if you intercept both wave and tide by artificial works, it follows that the deposition will be very much increased, because the matter is only suspended by the movement of the water, and if you intercept that, a deposit will take place immediately; the soil is lifted from the coast; there are no debouching rivers there, except the Tees.

1905. At present, any washings from the coast get out to sea?—The water so charged would find its way into this still-water basin, and would be there clarified.

1906. A harbour constructed so as to be close on each side, communicating with the land, and only opening in the centre, would have a current only in the centre; but to the right and left there would be an angle of still water, which would be a very good place for depositing mud?—Yes; a great space in such a harbour would be perfectly still, and subject to deposit.

1907. But it would be a much better harbour, so long as it was of sufficient depth, as a quiet water?—It would supply a still harbour.

1908. But, for a harbour of refuge, do you think it so important that you should have a harbour absolutely still, or only sufficiently protected from the sea as to afford good anchorage?—We only require for a harbour of refuge a protected anchorage; in fact, Yarmouth and Lowestoft Roads is the style of harbour of refuge that we require to be produced by artificial means.

1909. As furnishing a protection against losses at sea, and a place for vessels in distress to run to, a harbour of that extent would answer every purpose?—Yes.

1910. You mean the roads at Lowestoft?—Yes, the outside roads; that space contained between the shore and the outlying sands; the roads.

1911. The harbour itself is a small, trifling harbour?—Yes, it is a trivial place.

1912. Do you happen to know whether on the coast near Hartlepool there is any supply of materials suitable for constructing such a pier as is proposed?—I am aware that the whole mass of the shore there is magnesian limestone; but to what extent that would be available for a breakwater, I am not prepared to say: it might do for hearting, and even for a more extended purpose, but I am not certain.

1913. Is the coast very rocky?—Very rocky to the north.

1914. Are there high cliffs of rock?—Cliffs averaging 40 to 50 feet high.

1915. Sufficiently high that if hewn it would be a descent to the stage, if a stage were constructed, to construct the harbour of refuge?—Yes; but I believe the whole formation there is magnesian limestone, so that it is not necessary to take it from that point.

1916. Qarries might be found more inland; the nearer the point to the stage, the less the expense?—Yes; I make that remark, because it would not be advisable to cut away the heugh of Hartlepool at present, for such a purpose.

1917. You mean the headland?—Yes.

1918. Do you know much of the extent of the navigation of that particular part of the sea?—I am daily in the habit of witnessing it.

1919. Do you know anything of the details of the different ports?—I do not. Of course I know it is a most extensive trade.

1920. You know the Tyne well?—Yes, well; I have made surveys of it on several occasions.

1921. Is there not a very dangerous bar at the entrance of the Tyne?—It is a bar river.

1922. There are a good number of losses there, are there not?—Yes, a good

Mr. *E. K. Calver*, R. N.

27 July 1857.

number; partly on account of the character of the entrance itself, and partly on account of the enormous traffic.

1923. Are there some works going on at the Tyne now?—Yes, there are.

1924. What are they?—North and south piers projecting from each side in a direction towards each other, leaving an opening near the position of the bar, at the entrance of the river.

1925. What is the object of that?—To concentrate the scour of the river, within given limits, so as to lower the bar, which bar has only six feet depth over it at low water now.

1926. Those works are now in progress?—They are now in progress.

1927. Are they under the control of the Admiralty?—I am not aware.

1928. There is nothing at the mouth of the Tyne that you would suggest by by way of a harbour of refuge?—I may mention it as my distinct opinion, that no outlet of a small river like that of the Tyne is calculated for a harbour of refuge.

1929. Do you know Sunderland very well?—Intimately.

1930. Is there any reason with regard to the port of Sunderland that would induce you to suggest any work as a harbour of refuge?—Nothing, except for a local purpose.

1931. Nothing, except connected with the trade of the port?—Yes.

1932. Always distinguishing between the general purposes of seagoing vessels passing the coast and the private objects of a particular harbour, there is nothing in any of those ports excepting Hartlepool that you would recommend for the purpose of public money being laid out upon them?—I would not.

1933. You know the present harbour of Hartlepool?—Well.

1934. That is constructed only for the trade of the port?—For the trade of the two ports.

1935. That is, Old Hartlepool and West Hartlepool?—Yes.

1936. The trade has very much increased there of late years, has not it?—Very much indeed, in fact West Hartlepool is a modern creation altogether; it it a wonderful place.

1937. And it is a place that promises to be still further extended?—Yes, judging from what has passed.

1938. It possesses great natural advantages?—Not great natural advantages in a physical point of view, but there is some special reason, I suppose, for the development of the trade. It possesses advantages to this extent; it is situated under a projecting headland, so that there is an amount of protection, under certain circumstances, to the harbour from the weather.

1939. Is there not a considerable continental trade connected with that harbour?—I believe there is.

1940. Carried on in steamers?—Yes, and I understand that that trade is very much increasing.

1941. You have no hesitation in stating as your opinion that a harbour of refuge is urgently required on that part of the coast?—Urgently required; I may mention that in January last we had a gale of wind from the eastward, and I think as respects that gale, I stated in the report how many lives were lost, partly under my own observation; and if on that occasion, a harbour of refuge of sufficient space, and judiciously projected, had been in existence at Hartlepool, I have no hesitation in saying that the whole of those lives would have been saved.

1942. And the whole of the property?—Yes, distinctly.

1943. Have you considered the effect of a passing toll charged upon ships?—I have not; it is not a question that I have gone into.

1944. You have nothing to do with light dues?—Nothing.

1945. Do you know the coast to the north of the Tyne?—Intimately.

1946. If there were a good harbour of refuge in Tees Bay, do you think that would be sufficient for the security of the trade of that part of the coast up to the Firth of Forth?—It would be amply sufficient for the security of the whole trade within those limits.

1947. From Flamborough Head to the Firth of Forth, the only point where you would suggest anything, is Tees Bay?—Yes, that is the only place.

1948. Of course it would be available for all vessels trading to and from Scotland, or any part of the coast north of Tees Bay?—Yes.

1949. How

1949. How far would it be available for vessels going to the Baltic, from the Thames?—Their course would not lie that way.

1950. How far is it the case that in heavy gales, vessels going to the Baltic are so far driven out of their course as to be driven near upon that coast?—I do not know it of my own knowledge; I have heard of such cases.

1951. Is it a matter of rare occurrence?—I should apprehend so; it must be a very special gale, and of long continuance, to force a vessel so much to leeward of her course.

1952. You are not aware of the extent of the number of vessels bound to the north coast of Europe being driven sufficiently near to the east coast of England to make it probable that, on some occasions, they would use that harbour?—I think they would be chance occasions.

1953. With regard to steamers, of course it would be quite out of the question?—Quite so.

1954. Take vessels going from the Humber to the Baltic; their course would be nearer to Tees Bay?—It would; to those vessels such a harbour might be of use if they happen to be to leeward of their course; with a strong south-easterly gale they might be driven to a position where a harbour of refuge would be of very great service to them.

1955. Vessels going from the Humber to the Elbe, or going round to the Baltic?—Yes; I should think it might be available under many circumstances.

1956. With regard to the coast of Scotland, the Firth of Forth forms a very admirable harbour of refuge?—Yes, it is a natural harbour of refuge, and a very valuable one.

1957. Do you know the mouth of the Tay?—I do; I have surveyed it.

1958. The Tay also forms of itself a place of refuge in case of necessity, does not it?—Nearly under every circumstance.

1959. There are some small harbours to the north; there is a harbour at Arbroath, and one at Montrose?—There is.

1960. Is there any occasion for public works there for purposes of refuge?—I should not recommend any.

1961. They are strictly local harbours for the private trade of the places?—Yes.

1962. Do you know Stonehaven?—I do.

1963. There is a small artificial harbour there, is there not, put outside at the headland?—There are certain features that give protection, but you cannot term it a harbour.

1964. And Aberdeen has been very much improved?—Very much improved.

1965. The position of Aberdeen, with reference to the entrance, does not afford any great facility for making an outside harbour?—It does not; it is at the head of a sandy bay.

1966. Do you know Peterhead?—I do.

1967. Do you recommend anything being done at Peterhead?—Not at all.

1968. Confining your attention entirely to public purposes, it does not present any facility for an external harbour of refuge?—Except one of a very limited character, and which, of course, could only be partially available; there is a bay to the southward of the present harbour, but I think it is very contracted in space; the water is deep, and there would be a considerable outlay required.

1969. Cromarty Bay affords a very good harbour of refuge?—It is a beautiful harbour of refuge.

1970. Is there not very deep water there?—Very deep water; there is 30 fathoms at the entrance.

1971. Is it difficult to make?—No; Cromarty Firth is the most easy place on the coast of Scotland to run for. The Sutors which form the sides of the entrance are upright headlands, and, under all circumstances of weather, you can always see the opening through the shore even on a dark night.

1972. With regard to Wick, what is your opinion?—Wick is at the head of a bay.

1973. There is now a small fishing harbour at Wick, is there not?—Yes, the harbour of Pulteney Town.

1974. Has that very much silted?—Very much. I have a lithograph from a survey of mine in 1838, and at that time both harbours were silted up at low water.

 1975. Has

Mr. E. K. Calver, R. N.

27 July 1857.

1975. Has it not been improved by dredging since that time?—I have not visited the locality for the last two or three years. At the time of my last visit it was much in the same state as formerly.

1976. Are you aware of the large increase of the trade of that harbour during the last few years?—I am not.

1977. You are not aware of the great extension of the fishing trade?—Yes, I am aware of that; I have seen the extent of it, for I have been there at the time of the fishing season.

1978. Are you aware of the great extent of the foreign trade in connexion with the fishing?—I am not.

1979. The Baltic and German trade?—I am not.

1980. Have you seen the plan proposed for the enlargement of the present harbour by Messrs. Stevenson?—I hav .

1981. Do you approve of that plan?—I do.

1982. Do you think it would answer all the purposes of a harbour of refuge for the trade of that coast?—I can scarcely call it a harbour of refuge.

1983. It would rather be of the character of a trading harbour?—Yes, I should think so.

1984. Of course it would afford refuge for the fishing boats?—Yes, I should think so.

1985. Do you think it would be very apt to silt up?—Very apt.

1986. Do you think if that harbour were constructed now that the same thing would be found in 30 or 40 years hence that has been found in the inner harbour, that it would silt up?—I think, within that time, the proposed harbour would also be dry, like the others.

1987. The present harbour is dry at low water, is not it?—Yes, close to the entrance.

1988. The harbour of which you are now speaking is the smaller of the two proposed works, at the present time, as proposed to be constructed by Messrs. Stevenson on behalf of the Fishery Society?—It is.

1989. Do you know the plan proposed by Captain Washington and Captain Vetch, for a larger harbour?—I have it on the lithograph before me.

1990. What is your opinion of that proposed construction?—I should be afraid that in a heavy gale of wind there would be a chance of a very heavy sea, seaward of the work, resulting from the works themselves.

1991. You think that the proposed entrance in the centre, from its not being masked, would afford an opportunity for a south-east sea rolling inside of the harbour, and in some measure destroying the effect of the harbour?—It would curtail the available space for refuge.

1992. But there would be still, on the right and left, a large space of still water?—A large space.

1993. Would you be so much afraid of that harbour silting up?—In the course of years it would silt up, but it would be over a very great extent of time on account of the extra depth and space.

1994. If there were a harbour to be constructed there, would you prefer a breakwater in the same manner as you have suggested in Tees Bay, to a harbour closed at both ends?—I am afraid that would not answer; there would be a rocky shore close to the end of the work, both north and south.

1995. And you think that would be dangerous?—I think it would.

1996. Can you suggest any mode of masking the entrance in such a way as to avoid the difficulty which you have suggested?—I see no mode immediately on looking at the plan. If you masked it for a south-east gale, it would make it rather inconvenient to get in with a north-east.

1997. What are the chief states of the wind that a harbour of refuge would be available for there?—South-east.

1998. Then that would be exactly the gale which would carry a very heavy sea in through that opening?—Yes; direct into the bay.

1999. Would that make it very dangerous to take the harbour, do you think?—I should think so, for a small vessel.

2000. With a south-east gale, would there be a considerable return sea?—I should think so; an unfair sea. A following sea, or a sea which follows another one, nautically speaking, is not so dangerous; but when you have a confused tumble of a sea, a vessel becomes comparatively unmanageable.

2001. With

2001. With a strong south-east wind, the sea rolling against the south-east walls, would rebound back, and cause a considerable turmoil?—I should be afraid the tendency would be as I have stated.

2002. Of course that must be the case less or more with every breakwater for the purpose of stopping the flow of a strong sea?—But it need not be dangerous, if you are able to shape your course in such a position as to avoid it.

2003. And you think that with this opening in the centre, it would be very difficult so to shape your course?—I should be afraid a sea would exist over the approach to an opening of the character to which I have alluded.

2004. Would you prefer to have an opening towards the north headland, as is the case in Messrs. Stevenson's plan; you observe that in Messrs. Stevenson's plan there is a pier only from the south coast of the bay?—Yes.

2005. And there is an opening to the north coast from the pier?—Yes

2006. Is that a better construction for making the harbour with a south-east gale, than an opening in the centre between two piers?—I think it is.

2007. Would you think that an extension of Messrs. Stevenson's plan, by bringing the breakwater farther down the coast, so as to enlarge the area of the harbour, would be more likely to be successful than the two breakwaters proposed in the plan before you?—I think it would; I should much prefer one arm from the south side of the bay, leaving a broadway of approach between that artificial work and the northern shore, and it should be masked in north-east gales by the north point.

2008. I think there is a turn in the pier at the end inwards, in the plan proposed by Messrs. Stevenson?—Yes, there is.

2009. Have you any doubt as to the superiority of a pier from the south, as compared with the north?—I should prefer the south; I should consider the south decidedly superior to a northern arm.

2010. But you think there will always be a very great difficulty in any plan that may be adopted in that harbour, from the tendency to silting?—I think there always will be; I perceive that the whole bottom of the bay is sand; there is also a great mass of sand at the head.

2011. Can you suggest anything to the Committee which would tend to obviate or modify that?—Nothing could possibly modify it.

2012. Is it chiefly deposit coming down the river from the inner bay, or does it come from the coast?—I should think it was supplied by the sea principally, because the water of Wick is the drainage of the lake only. I think it is the drainage water of the Loch of Watten; and I should think the great mass of the material in Wick Bay is supplied from the sea, by the action of the wave.

2013. You think that a breakwater, such as you have suggested for Hartlepool bay, and such as has been made at Plymouth Bay, if carried a little further into the bay than is proposed now by the two external arms, would not answer?—I think not.

2014. But if there were a breakwater of that description, would not that tend to prevent the silting by leaving a scour at both ends?—I do not think the difference would be material.

2015. Why should the effect of an opening at both ends be so complete in Tees Bay, and so imperfect in Wick Bay?—Because in Tees Bay you have a passing current as well as a wave motion.

2016. Do you think the protection of the headland at Wick is so great, that you would have no current from the northward?—There would be no current; it would be merely a feeding in; it would be comparatively still water.

2017. You would have the ebb and flow of the ordinary tide perfect?—Yes.

2018. The ebb and flow of the tide by the plan as proposed, with those two arms, with an opening in the centre, the tide would carry in a large quantity of matter held in suspension which might be deposited, and on flowing out, those two breakwaters would hold it so that it would be deposited inside?—Yes, north and south.

2019. If you had such an opening at both ends, would not the ebb and flow of the tide carry out more freely any deposit of that kind?—No, there would be no current or tidal stream, properly so called, on account of the small mass of water compared with the channels for exit; it would be nearly an imperceptible stream.

2020. Then you think it very difficult to construct a harbour in Wick Bay, avoiding that difficulty of silting?—I think so; very difficult.

Mr. *E. K. Calver*, R.N.

27 July 1857.

2021. The only plan would be to have recourse to dredging, for the purpose of keeping it free?—There is no other than artificial means for freeing it.

2022. Has there been any attempt to keep the existing harbour sufficiently free by dredging?—I am not aware; what may be possible in a harbour of a small and limited space, would be a very difficult operation over a larger space.

2023. The space provided for by the two arms, suggested by Captain Washington and Captain Vetch is so large, that it would be a matter of a century before any very great effect would be produced?—Possibly.

2024. To the northward of Wick you have the Pentland Firth?—Yes.

2025. Does that afford a very good harbour of refuge for those seas?—Under certain circumstances of the tide it is an outlet.

2026. Vessels passing the harbour of Wick would be able to run for the Pentland Firth whenever the wind was at all to the southward?—Whenever the wind was at all to the southward after the tide turned.

2027. They would have to wait till the tide turned?—Yes, they must wait till the tide turned if the wind is heavy.

2028. With a northerly gale, those vessels could run for Cromarty Bay?—Yes, to Cromarty Firth.

2029. And with a southerly gale, to the Pentland Firth?—With a southerly gale, to the Pentland Firth.

2030. Are there many natural harbours amongst the Orkney and Shetland Islands?—They abound with natural harbours of the finest description.

2031. Do you know Scrabster Harbour?—I do.

2032. Is that a very safe harbour?—Very safe; but it is very limited in extent; it is very small.

2033. It is not to be called a harbour of refuge?—No, it is too limited for that.

2034. Is there any roadstead outside?—There is Thurso Bay, which is partially available under certain circumstances of the weather, but not all.

2035. Do you know anything about the extent of the trade around that coast, vessels going north about?—I do not.

2036. Have you any means of informing the Committee of anything like the number or class of vessels?—I have no means. I have observed the passing trade during the time I have been employed there, but it has generally been limited to about a score of vessels within sight, of a large description.

2037. You have not been upon that coast very much of late years?—I was there two years ago, describing the whole of it—of the Orkneys and the Shetlands, and the whole coast to the Thames.

2038. Do you know the west coast of Scotland?—Only from making a passage along it; I have no knowledge of that coast.

2039. It abounds with natural harbours?—It abounds with natural harbours.

2040. Do you know the coast of Ireland?—Not at all.

2041. You have never been there?—I have never been there.

2042. So far as your knowledge and experience go, you are of opinion that the most urgent place for a harbour of refuge at the present time is in Tees Bay?—Yes, that is the case.

2043. And that the construction of a harbour of refuge there would be immediately available for a very large amount of trade, and effect a great saving both of property and life?—I am sure of that.

2044. Mr. *Macartney*.] Have you a chart or a plan of Holyhead Bay?—I have (*producing the same*).

2045. You are at present employed upon the survey of Holyhead Bay?—I am.

2046. It is not completed?—It is not completed.

2047. You have only made it in connexion with the Holyhead side of the bay at present; the soundings do not extend round the whole bay?—Over the whole limit of the refuge harbour and protected anchorage.

2048. Are you not going further in the survey, as to the soundings and probable increase of that anchorage, by other works?—No; surveys have been already completed.

2049. Do you know a rock close to Carribel Head, on the main land of Holyhead or Anglesey, a place called the Beacons?—I have not been over that locality at all, except in passing.

2050. Then

2050. Then your instructions at present are only to extend it so far as the covering breakwater for the protection of the shipping?—They are limited to that.

2051. Have you looked at the bay with reference to any greater increase of safety of anchorage by works upon the opposite coast of Anglesey, opposite the refuge harbour, on the starboard hand as you go out?—I should think such works unnecessary.

2052. Do you conceive that if a wall was brought out by the beacons to a certain point to cover in from the north-west wind, that refuge harbour might not be of much greater importance to larger vessels than is intended now?—I think the harbour, as at present arranged, will afford a sufficient protection under all circumstances of weather.

2053. In the case of a large vessel of 800 or 1,000 tons coming in dismasted, and to a certain extent unmanageable in consequence, are you prepared to say that with the works as contemplated to be completed, with the two additions, she would be able to come in in the usual way if there were a sufficient hand on her to bring her to a place of safety, and let go an anchor?—I believe she would be perfectly safe.

2054. What will be the amount of anchorage available for vessels coming in to take refuge, either under injury or stress of weather?—Speaking from memory, the protected anchorage is 300 acres, and the harbour of refuge 260 odd.

2055. Where do you take the harbour of refuge from; from the turn taking a direct line from that to the Salt Island; you would consider that outside the harbour of refuge?—No, inside the harbour of refuge; outside, the protected anchorage.

2056. Do you consider that vessels of the class I speak of, a thousand tons and so on, would ever avail themselves, no matter what their difficulties were, of more than the anchorage outside of that turn, and that they would endeavour to get in to the inside?—That would depend upon the circumstances; if they wanted merely refuge, they would anchor in the outer anchorage; if they wanted repairs, they would go into the harbour of refuge.

2057. How soon do you suppose this wall will go to the outside?—I cannot give an opinion; the harbour, at present, is complete for refuge purposes.

2058. I mean to the buoy outside?—I can scarcely give an opinion upon that.

2059. Are there any works now going on for the purpose of affording a packet accommodation upon the land side of the bay?—They are not in progress.

2060. Has the plan of it been decided upon?—It was decided, as far as the engineer is concerned, on Saturday last.

2061. Have you examined those plans at all as contemplated by the engineer now, for the packet accommodation?—I have.

2062. Are you satisfied they will afford perfect accommodation at all times of the day and the night to packets of a large class?—I am satisfied it will supply all that accommodation.

2063. Whether foreign or from Ireland?—Whether foreign or from Ireland.

2064. Have you any idea what time they can be completed in?—That being a purely engineering question, I cannot answer it.

2065. You have not visited Portland since 1844?—No.

2066. Then you are not able to refer to the works there as connected with the breakwater in Tees Bay?—I am not.

2067. You mentioned that the entire of the material around Hartlepool Bay consists of magnesian limestone?—Or the red sandstone.

2068. Are they, as materials being made use of in breakwaters or piers, liable to the injury of the worm?—I believe they are.

2069. In this breakwater which you contemplate in Tees Bay, do you contemplate facing any portion of it, or is it to be merely rough?—I have not considered the matter of mere construction; my attention has been turned more to the projection.

2070. Would it require facing, do you think, for the necessities of preserving it, or would it be made with rough rubble, or coarse material, sufficient, if there were a proper mass of it, for all intents and purposes to form a breakwater for a

Mr. *E. K. Calver*, R. N.

27 July 1857.

harbour of refuge?—I should think that if the same system that is pursued at Holyhead were carried out at Hartlepool Bay, it would be amply sufficient for all purposes.

2071. For the formation of the breakwater the material must be brought by vessels?—Not necessarily, if they could convey a staging from Hartlepool Heugh.

2072. Do you consider that that would be a saving of expense against the carriage of the material by vessels?—I should imagine so.

2073. What would be the distance from the inner point of the breakwater to the land?—Of course no breakwater has been projected, but it would depend upon the projection itself.

2074. I mean if it were projected?—A couple of thousand feet, roughly.

2075. A third of a mile?—Yes.

2076. Have the foundations of the Tyne piers been commenced?—Yes, they have.

2077. Who is the contractor?—I do not know; Mr. Walker is the engineer.

2078. They are founded upon the sand, are they not?—No; the north is founded upon rock, and the south upon sand.

2079. Have you looked at the wreck chart made out for five years lately by the Board?—I have.

2080. It would appear by that chart that the great losses are from Newcastle, the Tyne River to Flamborough Head, Bidlington we will say; are you of opinion that, with a breakwater established in Tees Bay, the great amount of losses that appear to have occurred hitherto there would be immediately, almost entirely, obviated, and that ships would be able to make use of Hartlepool Bay, in place of having a breakwater elsewhere; do you consider that that would answer all the purposes of all that enormous amount of shipping that has been lost within the last five years?—All that loss resulting from stress of weather, would be prevented by a harbour of that sort at Hartlepool Bay.

2081. To the northward of Newcastle the losses appear trivial compared with the other?—Yes; trivial from being in a salient portion of the coast.

2082. Are not the losses in that district to be imputed very much to the returning colliers being light in ballast; if loaded, they would have a better chance of keeping the offing?—I have not analyzed the cases to see what the general cause was.

2083. Are you not of opinion that being light with reference to their calibre has a tendency to render them less manageable?—The light vessel has the best chance of escape, as the harbours under her lee may be available.

2084. Referring to the question put by the Chairman upon the subject of passing toll for the construction of a breakwater, is it your opinion that, supposing it is adopted in the Report by Parliament hereafter, that any portion south of Spurn Head should be liable to a passing toll for a refuge harbour, it should be applied to the Baltic trade going foreign?—Without having gone into the question, I should have thought that the fairer plan would be to make the vessels pay that use it, without reference to locality.

2085. Would not that induce captains to keep the sea, whereas if they knew that they had no additional charge they would run for the harbour?—Not when life is at stake.

2086. Have you been at Spurn Head lately?—I was there last October.

2087. There have been considerable works executed there, have there not?—Yes.

2088. Are there any works going on now?—None to my knowledge; I have reported upon it several times.

2089. Do you consider that all the works brought before Parliament are now completed?—I am aware that works were being carried out, but I am not cognizant of any other works at present in progress; those works that are being carried out are very useful and important.

2090. Any accounts now in Parliament for Spurn Head are for works now being executed?—I should fancy so.

2091. There is an estimate for further works at Spurn Head this year; do you consider that all the works necessary for Spurn Head have been executed?—No; certain works have been executed, but they are not a moiety of the works that are required.

2092. Have

2092. Have those works been decided upon to be completed?—I have not been in correspondence upon the point.

2093. Who is the engineer of the Admiralty who has that special district under his charge?—Captain Vetch.

2094. And not Mr. Walker?—Mr. Walker is the civil engineer.

2095. Probably he can answer the question?—Yes.

2096. Do you know anything of the south coast of Cornwall and Devon?—I have passed it often.

2097. Have you considered the propriety of any outlay for a refuge harbour upon the coast of Cornwall, either the south-west, outside or inside?—I have given evidence strongly in favour of the harbours of refuge now in progress, but I have not gone into the question of any harbour to the westward of Portland; those which I refer to are Dover and Portland, and the proposed harbour at Seaford Road, near Beachy Head.

2098. That is not in operation, is it?—No; nor is it so immediately pressing as the others.

2099. You have not reported further towards the Lands End?—Nothing further to the west than Portland.

2100. Are you able to say what locality in or about the Lands End, either to the north or south of it, would be a fit and proper position for a refuge harbour?—I have not considered it.

2101. Mr. *Augustus Smith.*] What is the object of the works which are being carried on at Spurn Head?—To secure a narrow and low neck of land; to prevent the sea breaching through, and destroying a very fine natural roadstead, and also the lighthouses that are the coast-mark.

2102. Has there been any accumulation or accession of land there in consequence of the works?—Yes; and the works were projected there with that view.

2103. Does that join on to the accumulations which now form Sunk Island?—The accumulations connect Spurn Point with Kilnsea Warrens.

2104. Has there not been a considerable accession of land within the Humber at Sunk Island?—That is much higher up the Humber.

2105. The one is not connected with the other?—Not at all.

2106. Have you been at Holyhead in the winter?—No.

2107. You do not know whether the sea has ever broken over the breakwater?—Possibly it has, but not with any force through the stones.

2108. You said that the great danger to be averted was in case the breakwater should be breached; I suppose that would only be by the wave topping the breakwater, and then driving out the stone?—Yes; the stroke of the wave acting upon a narrow summit.

2109. Provided the wave never topped the breakwater, but ran up it, and never topped it, would the breach occur?—It is possible; the undertow of a heavy wave would have a tendency to breach it.

2110. Are there any signs of breaching?—None at all; the vegetation is perfect at the lower mass of the breakwater.

2111. You mean the weed?—Yes.

2112. You spoke of the tendency of the sand on the east coast of England; you said that the movement was from north to south?—Yes.

2113. Is that regular all along the east coast?—Yes, the weight of the wave being from that direction.

2114. Have you observed any peculiar changes in those banks which afford refuge to the shipping, that is to say, the Lowestoft bank, or the Yarmouth bank, so that they either afford less or more security to the shipping?—I have made several surveys within a period of 21 years, and, comparing each result, I find that the general mass of those sands is moving to the southward, leaving various channels through them, much in the same place; but, considered as a mass, the whole movement is to the southward.

2115. Has their use now, as places of shelter for shipping, been at all affected by this movement?—It has not interfered with it up to the present time; the channels through the sand may be a little different, nautically speaking, but considered as a whole, it has not at all impaired their value.

2116. The great mass of the sands has not so shifted as to affect their general utility as places of shelter?—It has not.

2117. With reference to Hartlepool Bay, do you know the nature of the

Mr. *E. K. Calver*, R. N.

27 July 1857.

bottom there?—It is a very thick stiff clay, with a deposition of sand upon the surface of it.

2118. Is that deposition of sand of any depth upon the clay?—Several feet at least, because within the last few years the basin, or the lower part of Hartlepool Bay, has been filled up several feet by the sand.

2119. Is that sand brought in by the sea, or does it come from the Tees Mouth?—I would not give a distinct opinion as to the cause of it; as a fact there it is; I should be rather inclined to attribute it to several causes; perhaps from the enormous trade; it is possible that a certain series of gales, and so on, may have caused it; and it is possible after another interval of time the sand may lower again; I am not certain.

2120. Is there any shingle upon that beach, that shifts along?—None.

2121. The clay bottom then would afford a very good base; in fact, the stones for this breakwater would sink down into the clay?—Yes, and the sand would help to consolidate the breakwater.

2122. Have you examined Redcar?—I made a report upon it in 1851.

2123. What was your report upon it as respects its capability for purposes of refuge?—That it was a very bad position from the nature of the site.

2124. What would be the objection to it?—There were two ledges upon which it was proposed to rear the artificial works, and the mere expense upon those natural ledges would not be one-half of the expense that would be incurred.

2125. Did you speak of the danger of the sand being kept in there?—I am not aware that I alluded to that specially, but I have the same opinion as to the ultimate condition of a close harbour there.

2126. Is there any position to the north of Hartlepool, or immediately behind Hartlepool Head, where a breakwater might be constructed?—There is no site that I am aware of; I know the whole coast intimately, and nothing comes into my mind offering any advantages.

2127. You have been some time at Wick, off the north coast?—I have.

2128. Have you been much upon the coast in the neighbourhood of Peterhead and those other places in the neighbourhood, Banff for instance?—I have.

2129. Do you know the coast well?—Intimately.

2130. Have you ever made an examination round it, that headland, with a view to the formation of a harbour of refuge?—Not with any distinct reference to that, but I have made examinations of the whole of the harbours there.

2131. Is there any other position except what you have described in the bay south of Peterhead, where it would be possible to lay out a breakwater but in very deep water?—The water is so deep, and the space so small, that I should not be prepared to recommend anything being done.

2132. And there is no other position upon that coast offering facilities for the construction of a harbour of refuge?—None; and there is another objection to Peterhead, that it is upon a salient coast.

2133. What is the difference between Peterhead in the German Sea, and Holyhead in the Irish Sea; is not Holyhead on a salient point of the coast?—Yes, it is.

2134. What is the great advantage, then; how is it, as the position of Holyhead is exactly similar to Peterhead?—Holyhead is available for every vessel caught to the westward of it in westerly gales.

2135. Would not Peterhead be available in the same way for vessels that were caught to the south; do the gales generally set in from the south-west?—Generally from the south-east and east; they work to the east-north-east.

2136. In the case of vessels caught between the Tay and Peterhead, would not that salient part of the coast be very advantageous for a harbour of refuge?—For stoppage, but not for refuge.

2137. What is the difference?—If there was a harbour there a vessel might stop in it, and so far be prevented from being driven so much out of her course; in the case of a south-easterly gale she would run to the north-east, and then get to Cromarty.

2138. If the wind came from the north-east, what would she do then, after having passed Peterhead?—Then she would come to the southward, to have the Firth of Forth open.

2139. Supposing she was not able to get clear of Peterhead, north-east?—She must be very close in not to get clear.

2140. What would be the great advantage of a harbour of refuge at Wick under

under those circumstances?—As a matter of opinion, I should not be prepared to regard the harbour at Wick as a harbour of refuge.

2141. They could get to Cromarty, or to the Orkneys?—Yes; or through the Pentland Firth to Loch Erribol.

2142. Lord *John Hay*.] You said that the old harbour of Wick had silted up?—It has.

2143. From whence do you derive that information?—From my own knowledge; from seeing it.

2144. Do you mean that it has silted up under your own observation?—No; when I made the survey it was silted up.

2145. Was it ever otherwise than a dry harbour?—I believe that at the time the outer harbour was formed, there was deep water up to the inner harbour, that is, comparatively deep water; then after the formation of the outer harbour, that silted up like the inner.

2146. Has it not been kept clear by dredging?—I am not aware of that.

2147. What is the bottom of the entrance to the harbour, is it hard or soft?—Muddy sand; it is a mixture of earthy matter and sand.

2148. You are quite certain there was a greater depth of water in the harbour when it was constructed, than there is at the present moment?—I should apprehend so, otherwise there would have been no object in forming the harbour.

2149. But you admit that vessels can even now come in at high water?—Yes.

2150. Therefore the harbour would be available to that extent, that vessels would be able to come in at half-tide and at high water?—It would be for a certain class of vessels; that is, small vessels.

2151. If this harbour were constructed for the purpose of admitting that small class of vessels, because they cannot come in excepting at high water or half-tide now, is no argument to prove that the harbour was originally deeper than it is now; the object with which the harbour was constructed might have been only to admit vessels under those circumstances?—The very fact of building the outer harbour would be for a double purpose; first, to give more space, and secondly, to give a deeper harbour.

2152. Was not the object with which the outer harbour was built, to give more space?—I should say that it was one of the objects to meet the increasing trade.

2153. You said that the sea would be very great outside of the proposed breakwater; that that was one of the objections to the breakwater?—I should be afraid of a sea there.

2154. What depth is the water outside there?—Six and eight fathoms.

2155. Is it common to have a heavy sea in that depth of water?—The sea I allude to results from the artificial work, and not from the depth of water.

2156. I mean outside the artificial work?—Whatever the depth may be there would be a rebound.

2157. There would be no difference in that respect?—No, allowing them to be artificial works, and with that opening.

2158. Have you seen the works at Portland?—I have not.

2559. I asked you that question, because the engineer who has been constructing those works stated that he attached very great importance to the depth?—I should think that a greater depth would cause a greater sea.

2160. Does the sea break with the same force in very deep water as it does in shallower water?—It requires shallow water to make a breaking sea.

2161. Therefore the sea would be less if the breakwater were placed in deep water?—The sea, I am still alluding to, results from the breakwater, and not from any peculiarity of the depth, and it does not matter whether the breakwater is put in deep water or in shallow water; if it is put in deep water a heavier wave would reach it, and of course there would be a heavier rebound, and a heavier confused sea. The sea to which I allude results solely from the artificial works.

2162. Is the effect of a sea upon a breakwater greater when the sea strikes it in the shape of breakers upon a beach such as in shallow water, or when it is a large unbroken wave?—The breakwaters of the common sort create in themselves a destructive wave; the breaker is formed upon the breakwater, and that is very destructive, resulting from the shape of the breakwater.

2163. You think that it would not decrease the effect of the sea by placing

Mr. *E. K. Calver*, R. N.

27 July 1857.

the breakwater further out?—It would decrease it a little, because you would get further out from the influence of the bay; your sea would not be so concentrated, but I am not prepared to state the difference.

2164. You think, that if what you said is correct, there is no doubt about the sea being likely to break at the entrance of the proposed breakwater; it would be dangerous to vessels going through; if it was placed further out into deep water would that danger be decreased?—It might be decreased a little from being lifted out from the bay.

2165. Supposing that the entrance to the breakwater was masked to the south-east, for the purpose of protecting the entrance against the prevailing gale from the south-east, would not the north-east point of the bay protect the entrance from the sea?—It would.

2166. Therefore there would be no objection to masking it from the south-east gales?—I should think not; there is one nautical difficulty there; if the south breakwater is brought out too much in advance of the north breakwater, vessels in the case of a south-east gale, seeking a refuge, would be, to a certain extent, exposed to risk, from their broadsides being presented to the sea.

2167. At what period of a vessel going into the harbour would the broadside of her be presented to the sea?—When she hauled into the entrance.

2168. Would her broadside be presented to the sea before she got round the point of the breakwater?—Before, because she must be pointed for the entrance; she must give the breakwater a good berth, and that would force her to present her broadside to the sea some distance outside it.

2169. Is that the case in running round the breakwater at Plymouth?—No.

2170. For what reason?—Because you can take a following sea in with you, and gradually haul under the protection of the breakwater; by a following sea I mean a sea nearly aft.

2171. Would it not be possible to run past a portion of the end of the breakwater before you hauled in?—No, you must, in case of a gale of wind, in an artificial work, give it a berth, and the very fact of giving it a berth would necessitate the presenting of the broadside of the vessel.

2172. After you got round the point?—Before you got round the point.

2173. Are you of opinion that the bay of Wick has filled up at all within the last few years?—I have no observations to test that.

2174. I thought you stated that your impression was, that the quantity of matter that was held in the water was gradually leaking, as it were, into the harbour, coming round the point?—That is only on condition of such a harbour being carried but; but while the bay is left in its natural state, if there is any accumulation it will be very slow.

2175. Do you think that the fact of putting a breakwater across the entrance to the harbour would induce the sea to go more into the harbour than if there was no obstruction?—It would intercept the sea in the harbour itself.

2176. Therefore, the sea does go into the bay now?—It does; and that sea going in serves to maintain the depth in the bay, the stroke of the wave suspending the matter, and the return of the current taking it out.

2177. What is the reason that this matter does not fall to the bottom under the present circumstances?—It does fall to the bottom in fine weather. The times when matter accumulates in bays or other recesses is in fine weather; but directly a gale of wind causes a sea, that sea goes into the outlet; the wave suspends the matter, and the tendency is rather to clean it out than otherwise.

2178. You think that the bad weather cleans the bay out, and the fine weather tends to fill it?—While the bay is in its natural state.

2179. So that under those circumstances the proportions of the effect of bad and fine weather must be about equal?—Possibly; an equilibrium is preserved, I think.

2180. You attribute to that the fact, which you are probably aware of, that the bay has not filled up at all?—I attribute it to that; all natural inlets remain nearly in a permanent state for centuries, from those simple causes.

2181. With regard to the breakwater being masked as I described it, to the south-east, what distance, supposing it were masked to the south-east, do you suppose the northern portion of the breakwater would be from it; how much further into the harbour would it be?—I am afraid I cannot answer the question without seeing the work proposed.

2182. So

2182. So that you think you are perfectly able to answer the question positively, as far as you have gone, without seeing the work proposed with with regard to vessels hauling round?—My remarks have reference to the projection that I have seen.

2183. You have not taken into consideration the probability of its being made differently; that the northern breakwater might be placed a little inside of the southern one, so as to assist vessels coming into the harbour?—Yes; I think that one breakwater alone could be made, nautically speaking, very much more perfect.

2184. With regard to the trade, did I rightly understand that you had had an opportunity of judging of the amount of the trade running through Pentland Firth?—I have seen it upon several occasions.

2185. But not enough to give a positive opinion as to the amount of it?—No.

2186. At what time of the year were you there?—In the summer season, between April and November.

2187. At what time does the Baltic trade principally go through the Pentland Firth on its return home?—I should suppose in the spring and autumn when the ice is away, and before it forms: but I cannot state off hand.

2188. You were there about the time when there was no Baltic trade passing one way or the other; it was between the two?—Yes.

2189. You said that the harbours in Orkney were very fine; Longhope is a very fine harbour, is not it?—Yes.

2190. Is there not a strong objection to the harbours in Orkney, in consequence of the rapidity of the currents, and also on account of the outlets of those harbours?—Yes, there is.

2191. In very bad weather, supposing you had to run for a harbour, you would probably not select one which took you through the Pentland Firth, or among the strong currents at the entrance of the harbours of the Orkneys?—It would be absolutely necessary, in that case, to wait till the tide turned, before I could use the Pentland Firth or the harbours in the Orkneys.

2192. You said, as an objection to making Peterhead into a harbour of refuge, that it would not be strictly useful as a harbour of refuge, but that it might be useful for vessels to enable them to remain there during a gale, so that they should not be driven unnecessarily to leeward out of their course?—Yes.

2193. Do you not think that one of the most important things in the purposes to which a harbour of refuge should be put, would be to allow vessels getting so far in their course to have a safe harbour, which should prevent their being driven a considerable way to leeward, or prevent the necessity of their running the ordinary risks at sea in an attempt to keep to windward?—I should treat that rather as a commercial question; if there is a demand for a harbour of that sort in that locality, I should be inclined to let the locality provide it.

2194. How would you propose that the harbour should be provided; from what funds?—From those vessels using it; if a necessity exists, the vessels feeling the necessity would use it, and they would pay for the harbour; but for merely being driven out of their course I should not provide a harbour of refuge to meet a difficulty of that sort

2195. Do you not think that, when there is is no harbour of refuge for a vessel, there is a great disposition on the part of ships to keep to sea in preference to running 50 or 60 miles to leeward at considerable risk to themselves?—I think that they often do keep to sea in very heavy weather rather than run to leeward.

2196. So that the fact of there not being a harbour of refuge, under such circumstances, is very likely to be a cause of disaster to shipping, in consequence of that natural desire on their part?—It is to that extent: the consequence of being kept at sea in heavy weather.

2197. With regard to the position of the harbour of Wick, do you think that it might be of great value in time of war for the purpose of accommodating the vessels of Her Majesty's Navy?—It might be to a certain extent.

2198. Is there any harbour upon the north-east coast of Scotland where steamers can coal in any weather?—There are two in that part of Scotland: Scrabster Road and Cromarty Firth.

2199. With regard to Scrabster Road, where would you propose to coal a

Mr. *E. K. Calver*, R.N.

27 July 1857.

vessel of considerable size; say a line-of-battle ship?—She would lie in the road, and be coaled by small craft.

2200. Could you coal a vessel at all times in Scrabster Roads?—Yes, a vessel of size.

2201. Is the sea sufficiently smooth to enable you to do so?—At nearly all times.

2202. During the winter time?—During every part of the year, from the natural character of the bay.

2203. At which part of Scrabster Roads would you anchor a large vessel to coal?—Within the body of the road; that is, at a place within Little Head.

2204. On the west side of the bay?—Yes, on the west side of the bay.

2205. How close to the shore would you anchor a large ship that was coaling?—I should not anchor very close.

2206. You would be a good distance from the shore protecting her?—A vessel of size would be partly uncovered.

2207. You still think that that is a place that would be convenient for coaling vessels?—Over nine-tenths of the year; I think that when a large vessel could not coal there it would be the exception.

2208. Do you mean when a large vessel would coal from boats?—Small craft.

2209. What was the object of making that pier at Scrabster Road?—I am not aware.

2210. You are not aware then that the object was in consequence of the sea being so violent there frequently, as to prevent the steamer from communicating and taking its passengers on board and landing them, and coaling, and all that sort of thing?—I should suppose that it was built to meet that difficulty.

2211. You are not aware that the necessity of that was found to be so great, that they are endeavouring, at a considerable cost, to extend the works?—It would be a very useful extension. My remarks have reference to a vessel of good size; not a small steamer, but a vessel of good length.

2212. Do you think it easy to coal a vessel of large size from a vessel of small size when there is any sea on?—I should be inclined, in a case of that sort, if it did not involve risk to the large vessel, to spring her a little.

2213. Have you ever found that vessels were unable to coal in Plymouth Sound, within the limits of the breakwater, excepting at considerable risk?—I am not aware of that, but I should suppose that risk often occurs.

2214. Inside the breakwater?—I should think inside the breakwater.

2215. Do you consider the breakwater at Plymouth an effective work?—A very effective work for purposes of refuge.

2216. With regard to Cromarty being suited for coaling vessels, do you think it would be a good place to use as a coaling depôt for men-of-war in time of war, taking into consideration the immense distance that it is to leeward?—I think that it would be an excellent place for coaling.

2217. It would be an excellent place, as far as the conveniences of the place itself are concerned, without reference to its position?—Yes; the drawback being the depth at the head of the bight.

2218. With reference to its depth, do you consider that that would be a considerable drawback to its efficiency?—It would be a drawback to that extent, but not to impair its efficiency to any considerable degree.

2219. I did not distinctly refer to its conveniences as a coaling depôt, that is, whether it would be a good place for a vessel to coal conveniently, but whether, in a military point of view, it would be a good place to have vessels lying at and coaling at?—Its distance at the head of the bight would be a disadvantage for purposes of war.

2220. Would you think that an important disadvantage?—Practically, I should not suppose that it would operate very often; it would be a disadvantage in special cases where time was of the utmost importance.

2221. In time of war with a great maritime power, do you suppose that time would be of any importance?—There might be circumstances where time would be of the utmost importance.

2222. Could you watch the Pentland Firth from Cromarty?—You could not.

2223. Do you think that Wick would be a good place for men-of-war, under those circumstances?—Much superior to Cromarty, as far as position is concerned.

2224. Would it be as good as Scrabster, supposing that there was a breakwater constructed?—Compared with Scrabster, I should rather prefer Scrabster.

2225. Even

2225. Even although Scrabster should not have a work constructed?—Although Scrabster should not have a work constructed, I rather prefer Scrabster.

2226. How much of Scrabster is open to the wind and sea?—Scrabster Road itself is covered; it is only a small bay upon the side of Thurso Bay, and to that extent it is so far covered, though it is very limited. It might be necessary to second the advantages it possesses with an artificial work, if it was required to be extensively used.

2227. Is the harbour entirely bound?—It is generally protected; it would be open to northerly gales.

2228. Do you know how many points of it are open?—I do not; but, in northerly gales, the Pentland Firth tides serve to keep the swell down, except at slack water, when the swell finds its way home of course.

2229. Do you think that it would not be advisable to do anything at the Firth of Forth?—Not for a public purpose.

2230. Did you give any opinion with regard to Arbroath?—I did not.

2231. Do you think that anything ought to be done there?—I merely classed it with the other harbours in the neighbourhood, as one of purely local value.

2232. With regard to the breakwater at the Tees, have you any plan of the work which you propose to execute there?—I have not. I have mentioned in general terms my views, but the exact projection would be determined upon finding out the exact set of the tide streams, and one or two other points of information. The principle of the works should be such as I have stated.

2233. You would be obliged then to make the breakwater with reference to the stream?—Partly with reference to the stream.

2234. Are you perfectly confident that, if it were made with reference to the stream, it would not be open to the sea in any way?—It would be open to the sea, but not to endanger it for refuge purposes. I have mentioned my ideal of a refuge harbour to be a protected anchorage.

2235. What length would the breakwater which you propose be?—Speaking roughly, about a mile long.

2236. How much space do you suppose it would leave in the shape of a protection to vessels; what area?—It is a mere venture, but I should suppose that there would be from 300 to 400 acres of good depth.

2237. It would be in the triangle, as it were, which would be formed, and protect it?—The breakwater I have in view would protect the whole space of the bay.

2238. Would it not be open to the south-east?—Yes, partially; but then refuge is not required from the south-east.

2239. Would it be open to east-south-east?—No.

2240. Why is no refuge required from the south-east?—A south-east gale is not an embaying wind.

2241. Do you think that it might be important for men-of-war to lie upon that coast?—Very important.

2242. Would they not require protection against a south-east wind?—They would have protection under the breakwater that I have already described; it would be a protection under every circumstance of wind and weather, though the bay, as I mentioned just now, would not be so thoroughly protected in a south-easterly gale as in a gale more easterly.

2243. It would be protected enough, you think?—Yes.

2244. Would not the breakwater be placed in such a position as to leave the south-east open?—No.

2245. Would it not be nearly straight?—No; speaking generally, it would be curved with the direction of the tidal streams, if it could be so projected; my object being not to interfere at all with the set of the tide through, and I think that is perfectly consistent with affording all the refuge that is required.

2246. You think that it would also be protected from the north from the sea that would come in rolling round there?—There would be a perfect protection from the north.

2247. At the present moment there is no protection whatever for men-of-war upon that coast?—There is no protection whatever.

2248. So that, if a fleet were cruising for the purpose of protecting the trade upon that part of the coast, there is no place where they could anchor in heavy weather?—There is no place at the present moment between the Humber and the

Mr. E. K. Calver, R. N.

27 July 1857.

the Firth of Forth for such a purpose; a small vessel might, upon the top of the tide, get into the Tyne.

2249. During the old war, the vessels upon that coast of course were able to sail for the Firth of Forth under one circumstance, or to the southward under others, and anchor under Yarmouth Roads?—Yes.

2250. In the present day, however, as war would be conducted by steam, it is extremely important that men-of-war should be immediately in the vicinity of that part of the coast which they frequent?—As steam provides facilities for attack, facilities for defence should also be provided.

2251. The vessels that defend should be stationed almost immediately close to the place defended?—Distinctly; it is an absolute necessity.

2252. The mercantile towns upon that coast are very close to the sea?—The mass of the property is within shelling distance from the sea.

2253. So that it is immediately open to attack?—Yes, immediately.

2254. Therefore, you think it very important that in any works constructed at the national expense, due regard should be paid to proper provision being made for men-of-war?—I think it is an important collateral point to keep in view.

2255. You said that you had recommended Seaford?—Yes: I gave evidence to that effect in 1844.

2256. Do you adhere to the opinion which you expressed at that time?—I do.

2257. You also recommend Dover?—I did; I gave strong evidence in favour of it.

2258. What are the great necessities in that part of the channel requiring a harbour of refuge at Seaford?—There was a necessity for a harbour of that sort for the use of vessels embayed to the westward of Beachy Head. Another reason was, that they should have a harbour there to go into to save loss of track, to prevent their being driven back a long distance; and there is also the military reason.

2259. I thought that you considered that that was hardly a sufficient reason for a harbour of refuge?—In the order of construction it was the last; as necessary works, Dover and Portland pressed more.

2260. Do you know anything of the north of Ireland?—I have no practical acquaintance with the coast of Ireland at all.

2261. Mr. *Hassard.*] The ridge of masonry, you said, at Holyhead springs from low-water mark?—Yes.

2262. Does not the rubble foundation proceed any higher than that?—The rubble foundation proceeds above high water springs.

2263. That is in the heart of the rubble?—That is in the heart of the rubble

2264. The rubble foundation at the seaward face does not proceed beyond low-water mark?—It proceeds several hundred feet below low-water mark.

2265. Above low water-mark springs?—The great mass of the rubble is above high water springs.

2266. You said that the ridge of masonry springs along the centre of the breakwater, rising from low-water springs?—Yes.

2267. Is not the base of the masonry at low-water springs?—It is.

2268. Then of course the rubble work does not show?—Yes; a deep trench for this work has to be taken out from the centre of the rubble work.

2269. Does the rubble work show in the face of that masonry?—The whole of it is above high-water springs, where that masonry is being constructed; but it is necessary to lift the rubble out which occupies the space that the walls stand in.

2270. Is the rubble work carried up along the face of the masonry?—Yes, it is a perfect *glacé* from the masonry itself.

2271. And the masonry work is a core?—Yes, a solid substantial core.

2272. Does not the stroke of the wave act upon the rubble work between high and low-water mark?—Yes.

2273. And the fall of the crest of the breakers does not tend to work out the stones?—The tendency of the undertow would be to that, but when the breakwater is completed there will be none at all; the *glacé* will accommodate itself to the average sea stroke, and afterwards there will be no movement.

2274. Have you never seen in a finished work, where the slope proceeds to high-water mark, the slope disturbed afterwards by the action of the wave?—Not if it is arranged by nature, that I am aware of; if it is arranged artificially, a mistake may be made. In fact, a plunging sea will disturb masonry at a certain

certain slope; but if you allow nature to do the work, merely leaving the material there, and afterwards leave it to be disposed of by nature, when the breakwater is complete, it will be arranged up to this back-bone.

2275. After this vertical wall was built, was the rubble arranged along the face of the sea?—I am not aware how it is done; there is not a sufficient length completed yet; it is the part that they have not done.

2276. Would not that be a very destructive action to the masonry?—I should think that it would have no effect upon the masonry whatever, as the stroke is administered by the crest of the wave.

2277. Is there any natural bank existing at Hartlepool upon which you propose to found the breakwater?—None at all; it is a plain surface without obstruction.

2278. Does the water deepen regularly from the shore?—Yes, without any outlying bank.

2279. You have said that the tendency of a permanent harbour would be to silt up?—Yes; I made a strong report to that effect at the time that it was proposed.

2280. In the event of a permanent harbour being built, would there be any tendency in the water to shoal outside?—No, it would take the position of a portion of coast line.

2281. Are you aware what depth is expected to be obtained by the works at the Tyne at low water?—I do not know; I have heard certain surmises.

2282. I think that some one said they expected to get 16 feet at low water?—As a matter of mere opinion, I think they may get 10. It is probable that the extra concentration may give them that extent, but I believe not beyond that.

2283. If they did get 16 feet would not that allow a light class of colliers to run for it at any time?—No; where there is a strong outset against an ingoing sea it is very dangerous.

2284. But they could do so as a mere matter of water?—Yes, as a mere matter of water it would be possible.

2285. You said that a south-east wind was not an embaying wind off Hartlepool; would it not be the wrong way for a vessel to run to leeward for the Firth of Forth?—If there was a danger of the gale lasting, a loaded vessel ought to hang out as long as possible; if she could get into the Tyne at the top of high water, well and good, but, if not, let her go to the Firth or to Holy Island.

2286. Is Holy Island a very beautiful place?—Yes, in the case of a south-east gale.

2287. Lord *Adolphus Vane Tempest.*] The tendency of your evidence, as I understand it, is to impress upon the Committee the necessity of a harbour of refuge on the north-east coast?—Yes, it is.

2288. I see that in your Report you have given some statistics with regard to 1856, that 576 wrecks, or one half of the wrecks on the whole coast, took place on the east coast?—It is so stated in the public return.

2289. And you have given various statistics in that Report, all tending to prove the enormous loss of life and property on that coast?—Yes.

2290. I have also seen in your Report, that you state as your opinion that the ports of the Tyne, the Wear, and the Tees, have 102,000 vessels annually entering and leaving their harbours, which you state is a sixth of the trade and tonnage of the whole kingdom?—Yes.

2291. Having that strong opinion of the necessity of making a harbour of refuge there, and it being your opinion that an enormous saving of life and property would take place, would you not consider that it would be most advantageous, in a national point of view, to have a harbour there?—It would be most advantageous in a national point of view.

2292. I believe that you are aware of the mode in which the Government have assisted other places in regard to harbours?—I am.

2293. That being the case, do you not consider that that portion of the coast has a fair claim upon the Government for some assistance, if a harbour were constructed upon it?—I think that it now has the first claim; the pressing defences of the country being provided for.

2294. The tendency of your evidence rather was that Hartlepool is the best site for the construction of a harbour?—The best site on all accounts, nautically and physically.

Mr. *E. K. Calver*, R. N.

27 July 1857.

2295. You are opposed to Mr. Rendel's plan, which you think, on various accounts, would not be beneficial for a harbour of refuge?—I was opposed to it distinctly for the reasons stated in my Report, now a Parliamentary Paper.

2296. I believe Captain Vetch was also opposed to Mr. Rendel's plan?—I believe he was.

2297. And your view is to construct a breakwater on the north side, a mile long?—Yes, which would supply all the necessities of refuge, without involving any of the risks which the former plan would have done.

2298. Have you made any estimate with regard to the cost of the proposed breakwater?—I have no experience of the expense.

2299. You could not give the Committee a supposititious estimate?—No.

2300. Have there not been many other propositions on the coast of the Tyne, the Tees, and the Wear and Sunderland, with applications to the Government for assistance to improve the harbours there?—There have been applications by parties not taking a comprehensive view of the question.

2301. Is it not the opinion of the Tyne Commissioners and the Tees Commissioners, and those interested in Sunderland, that in the event of the Government granting money in aid, they could very much improve the refuge afforded at those ports?—The establishment of the harbour at Hartlepool to which I have alluded would render such an outlay unnecessary.

2302. In the event of the Government being disposed to render aid for the construction of a harbour, I presume it would be fair that each port soliciting for aid should have its claims investigated before any absolute decision were come to for any particular site?—Yes; distinctly.

2303. Before the Government gave money for the formation of a harbour on that coast, you think that the claims of all those sites should be fairly considered and decided upon as to which was the best site?—They should. It is possible that all those ports might be improved for the purposes of refuge to a limited extent; that is, they might be made superior to what they now are, but not to meet the evil of the great loss of life upon the north-east coast.

2304. I believe you stated, that you were opposed to the principle of getting any passing tolls from a harbour of refuge?—I have not thought of the subject; but, upon the first blush of the thing, it seems to me a better arrangement to make the vessels pay that enter.

2304*. I believe you used the words "that it would be a fairer principle to make those vessels pay which use the harbour"?—Yes.

2305. It is not your opinion that the captain of a ship would be deterred from using a harbour of refuge if he had to pay for using it?—I do not imagine that the mere matter of cost would ever interfere with his movements where life was in question. There are some men who are very stubborn, and you cannot provide for errors of judgment.

2306. You consider that it is most essentially necessary to form a harbour of refuge somewhere on that coast; that that coast has a fair claim upon the Government for a grant in aid of the formation of that harbour; and if the Government took that view, it would be fair, before any site was fixed upon, that the claims of all the different portions of that coast should be considered previously to fixing which locality should obtain that grant of money?—I think so.

2307. That is the general purport of your evidence?—Yes; having already given a distinct opinion that it should be at the head of Tees' Bay.

2308. But in justice to the other ports on that coast, you think that a fair examination should take place with regard to their claims and their merits?—I should think that that should be well considered.

2309. You have stated that you considered that a harbour between the Humber and the Forth would be a very valuable harbour for the defence of the kingdom?—It would, as an intermediate position.

2310. I believe the tendency of your report was very unfavourable to Redcar as a harbour?—Yes, very.

2311. The bottom of Redcar would render it a most unadvisable site for the construction of a harbour?—Yes; and I stated, that if a harbour was really necessary about that site, it would be far better to go upon one side of the rocks than to build upon them; you would enclose a nest of rocks, which would cause an immense exhaustion of funds.

2312. Mr. *Baring.*] What gales cause the greatest loss of shipping on the eastern coast?—East by north, that being a direct embaying wind.

2313. You take the line of embayment from north Sunderland point on the north to Robin Hood Bay on the south?—I do.

2314. You stated that, when the wind is to the south-east, you would not consider that an embaying wind?—No, refuge is not required; there is a fair and free outlet without any difficulty.

2315. With respect to the trade to Scotland passing that coast, would ships necessarily come within that line of embayment?—They would not come within that line of embayment, and it would not be directly such an advantage to the Scottish trade, but under certain circumstances of a heavy gale it would be of the utmost importance to them.

2316. You could not say that they would necessarily come within the line of embayment?—They would not, because their course is outside of it.

2317. If they were outside of it they could go to the Humber?—Yes; or, if they could not do so, this harbour would be available.

2318. Can you state to the Committee whether the works which are now going on at the Tyne will, when completed, give any facilities for refuge at all times of the tide?—They will be advantageous for refuge over a portion of the tide in proportion to the extra depth that they cause.

2319. Will they give refuge at low water?—They will only give refuge four hours out of the twelve.

2320. You would not consider that those works will give anything like the amount of refuge that is required?—Not at all; it will supply refuge to vessels of an inferior class, and only over the short interval that I have named.

2321. You state in your Report, that these small tidal harbours, possessing none of the proper features of a refuge harbour, can only be termed dangerous decoys?—Yes.

2322. A great many vessels running for those harbours cannot get in?—No, and if the harbours did not exist the vessels would keep off them. They are induced to run to leeward, hoping to get into those harbours, whereas, if they did not exist, the vessels would keep the offing and sail to the Firth of Forth or the Humber.

2323. And you think that no improvement of those tidal harbours would meet the case?—Only a very small portion of the difficulty.

2324. You consider that a harbour specially formed for refuge purposes is necessary in that line of embayment?—Yes, within that line of embayment.

2325. With respect to forming a harbour for that line of embayment, you have stated certain reasons why you consider that the harbour should be at the head of the embayment?—Yes; the material point is, that a harbour established at Hartlepool would be available for the whole extent of that coast in an emergency; whereas, elsewhere it would only be available for a small portion of that embayed bight.

2326. The mouth of the Tyne would be almost at the extreme north of the line of embayment?—Yes, towards it.

2327. Consequently, a vessel caught in a north-east gale could not avail herself of it?—No, not even in moderate weather, if the wind was strong.

2328. With respect to the north coast, I think I understood you to say that you would not consider a harbour for refuge purposes, putting aside any other matters, as necessary at Wick?—My opinion is, that refuge is not immediately necessary at Wick.

2329. Upon what reasons do you ground that opinion?—Upon account of the nature of the coast.

2330. Taking from Kinnaird Head to the Pentland Firth, looking at the Wreck-chart, you see a good many wrecks between Kinnaird Head and Inverness Head?—Yes.

2331. Supposing those wrecks to be occasioned by stress of weather, would a harbour of refuge at Wick be available to them?—Wick would not be at all available for them; they would have Cromarty, but Wick would be dead to windward.

2332. If there had been a harbour of refuge at Wick it would not have prevented any of the wrecks between Inverness and Kinnaird Head?—Not if they occurred from stress of weather.

2333. I think you stated that the worst wind there is a south-easterly wind?—I am not prepared to say.

r. E. K. Calver, R. N.

27 July 1857.

2334. What wind would occasion most wrecks on that part of the coast?—To vessels on the south shore of the Moray Firth, if a heavy gale of wind came on from the northward and they were close in, a northerly gale would cause it, but if they were upon the north-west side and a south-east gale came on, then a south-east wind would be the difficulty; the south-east wind would be the difficulty upon the north-west side, and the northerly gale on the south side.

2335. Do you think on the whole that Cromarty, as a harbour of refuge, is available for almost all circumstances there?—For very many of the circumstances, but there are certain circumstances under which a vessel could not get to Cromarty.

2336. It appears that there are very few wrecks on the coast north of Cromarty, between Cromarty and the Pentland Firth?—Very few, as I should have expected.

2337. Do you consider that that number of wrecks renders it necessary to make a harbour of refuge?—I think that the paucity of the wrecks shows that there is not a necessity.

2338. Mr. *Dodson.*] You have stated especially that there is not such a pressing necessity for a harbour of refuge on the southern coast; have you taken into consideration, not only the number of wrecks, but also the number of lives lost on the different coasts?—I have not.

2339. Are you aware that, in the year 1856, thirty-five per cent. of all the lives lost by shipwreck on the coast of Great Britain and Ireland were lost in the English Channel?—I am not aware of that.

2340. Are you aware that, in the year 1855, forty-four per cent. of all the lives lost on the coast of Great Britain and Ireland were lost in the English Channel?—I am not aware of that.

2341. Are you aware that, in the year 1854, twenty per cent. of all the lives lost on the coast of Great Britain and Ireland were lost in the English Channel, and that in the year 1853 fifteen per cent., and in the year 1851 about twenty per cent. of all the lives lost on the coast of Great Britain and Ireland were lost in the English Channel?—I am not aware of that, but allowing that per-centage to have taken place on the southern coast, I am not aware that any harbour could be placed in any portion of the whole coast of England calculated to save an amount of life as the one in Tees' Bay.

2342. You spoke of the trade being very extensive at the colliery ports on the eastern coast; it is principally, I believe, a coasting trade?—There is a considerable foreign trade; but the great mass is coasting trade.

2343. That foreign trade is principally with what countries?—There is a trade being developed with France and Eastern Europe; in fact, a continental trade is being developed in the whole of those ports.

2344. Does a great part of the foreign vessels pass along the coasts, or does it go straight across the German Ocean to the Baltic?—The vessels bound to France would be coasters; those bound to the Elbe would immediately make the offing in a straight course.

2345. Would you say that the greater portion of the vessels engaged in the foreign trade do not go along the coast?—I should say the greater portion did. Those for South Holland, Belgium, France, Spain, and the Mediterranean, would all derive an advantage from that harbour, being coasters.

2346. You have no return showing what the proportions are?—I have not; I see the reports monthly.

2347. This coasting trade to Hartlepool and Newcastle and Sunderland and Shields and Stockton is principally a colliery trade, is it not?—Yes, the great mass is a coal trade.

2348. The colliers go out with coal and return in ballast?—Yes, they go out full and return in ballast.

2349. Therefore, would it be fair, in comparing the trade of those ports with the rest of England, which was done by a witness here the other day, to take only the vessels cleared outwards as a measure of the trade of those ports?—Not as a matter of money value.

2350. It was stated in evidence before the Committee, that the coasting trade of those five ports was half the coasting trade of England?—Half the coasting trade as to numbers, but not as to value, I should fancy.

2351. That was taking only the numbers of vessels cleared outwards?—Yes, without respect to class.

2352. It is not to be taken as a measure of the trade of those ports?—Not of the value of the trade of those ports; it is not the whole of the question.

2353. Are those colliers generally efficiently manned?—They are not.

2354. Do the owners of them generally endeavour to sail them as cheaply as possible?—I believe they do.

2355. Are they generally commanded by competent masters?—Speaking from my own knowledge, I should say that they are not competent; when I say that they are not competent, I mean that they are men who run risks.

2356. Are the crews of an inferior stamp; is there much drunkenness on board the ships?—There is a great deal of drunkenness; but, considered merely as sailors, I think they would compare with any men on the coast.

2357. They are not worse than the sailors of larger vessels that go on foreign trade?—Not considered merely as seamen.

2358. Is the discipline as good as it is on board large merchantmen?—I am not prepared to draw a comparison.

2359. Do the owners generally take care that those colliers are in a seaworthy state when they put to sea?—The great mass of the colliers may be strictly said not to be always in a seaworthy state; their gear is very inferior; the sails that I have seen are particularly so.

2360. Do they carry a proper supply of spare sails?—I am not aware, but the gear in common use is extremely inferior; they are the only persons in that trade who would use such gear; but that may arise from circumstances of which I have no knowledge.

2361. Can you give the Committee any idea of the proportion of wrecks taking place on this coast which arise from stress of weather, and from the want of a harbour of refuge, and what proportion arises from such causes as those which you have just mentioned?—The loss of life and the loss of ships would result from having no harbours. A vessel either founders in the deep sea, or runs for a port when it is particularly dangerous; but a great loss of property results from mere carelessness.

2362. Can you tell what proportions of those ships are lost solely from the want of a harbour of refuge, and what proportions are lost from causes that might be avoided?—I think that the great mass are lost from the simple want of a harbour of refuge in times of emergency; that is the cause of the great loss of life.

2363. But looking to the number of wrecks which are marked upon the Wreck-chart, which is spoken of as one great argument for the necessity of a harbour here, should you say that the greater proportion of those wrecks arose from stress of weather, and the want of a harbour of refuge, or from causes that might be avoided?—I should say, from my own experience, that a great number of them arises from causes that might be avoided, and this is one great cause; men will sooner risk their ports, when they are dangerous, than pass them.

2364. Do you think that if those vessels are wrecked from causes which might be avoided, that forms a ground for the construction of a harbour of refuge at the national expense?—It forms one of the grounds, because those very men who now run the risk of entering those bar harbours would use your refuge harbour, if it were constructed, sooner than incur that risk.

2365. Those vessels that are lost from causes that might be avoided, if the larger proportion of vessels is lost from that cause, you think afford a sufficient reason for a harbour of refuge being constructed?—The harbour of refuge that I have alluded to would be eminently calculated to prevent that.

2366. But you think that if vessels are lost from those causes that is a just ground for the construction of a harbour of refuge at the national expense?—No, nothing of importance; it is a secondary ground.

2367. Is it a ground at all?—It is one of the grounds distinctly.

2368. To save those people from their own neglect?—To save property from various causes of neglect.

2369. Do you not think that the owners may be intrusted with their own property, and if they do not think fit to do so they may be left to take the consequences?—Men will run risks if there is no means to prevent it; and this harbour would supply the means at once to meet those very cases. The men who now lose their lives from carelessness would sometimes make use of this particular harbour at Hartlepool.

Mr. *E. K. Calver*, R. N.

27 July 1857.

2370. Can you state what amount of tonnage passes up and down the Channel in the course of a year?—I cannot.

2371. Is it greater than that which passes up and down the east coast?—I am not aware; it is of a different character altogether as to value. The great mass of the ships on the north-eastern coast are inferior as to size and as to money value, and their cargoes are not so costly.

2372. Therefore the trade that passes up and down the Channel would be less of a local trade, would it not; it being the trade of vessels to and from all parts of the world?—The foreign trade of the eastern coast bears no comparison with the foreign trade in the Channel.

2373. Any harbour of refuge constructed at such a point as you mentioned, Beachy Head, or anywhere in the Channel, would be constructed not for local purposes, but purely for national purposes?—The national purpose would be a very material point on that part of the coast.

2374. The harbour at Wick has been recommended principally on military grounds. If military grounds are to be considered, should you not consider that the southern coast stands as much in need of harbours for defence as Wick?—I should think that the necessity for war purposes has been a great deal met on the southern coast, or will be met, by the works which are now in progress.

2375. Do you not consider that the trade on the southern coast, and the coast itself, would be most particularly exposed to attacks in the event of a war with the chief maritime power on the Continent?—Very; as the trade on the northern coast would be were we at war with other powers.

2376. Are you acquainted with the harbour at Newhaven?—Well.

2377. Is that susceptible of improvement by dredging?—Except for local purposes, certainly not.

2378. Would it not be available as a station for gun-boats and for revenue purposes?—Yes.

2379. Is there a depth of water sufficient now at low water to admit a gun-boat?—I have not been professionally engaged in Newhaven since 1844, when the Commission was down there.

2380. Are you aware that Newhaven has been considerably improved since that time?—Yes; and I believe it to be equal to the purposes of a station for a light squadron.

2381. You are not aware that there is not at present depth of water enough at the mouth of the harbour for gun-boats?—I am not aware.

2382. *Chairman.*] Do you know Aldborough Bay?—I do; I have surveyed it.

2383. Is it a very important point of the coast with regard to shipping?—Its importance is done away with by the closeness of Hollesley Bay to the southward of Orfordness.

2384. Are you of opinion that any works should be constructed at Aldborough Bay?—I am of opinion that no works should be constructed at Aldborough Bay.

2385. Was not there an inquiry some time ago into the necessity of constructing works there?—I believe there was.

2386. But on public grounds, nothing presses?—Nothing; it is amply supplied by Hollesley Bay, which is a beautiful bay.

2387. That is on the coast of Suffolk?—That is on the coast of Suffolk.

2388. Then there is the Thames on the south and Yarmouth Roads on the north?—Yes; and this in the centre, and Harwich harbour close to it.

2389. And those facilities, you think, sufficiently supply any want that could be supplied by improvements in Aldborough Bay?—Amply; anything in Aldborough Bay is rendered entirely unnecessary by the existence of those harbours.

2390. Mr. *Macartney.*] Have you visited Harwich lately?—Yes, I was there last September.

2391. Has a great amount of refuge been attained by the works which have been carried on there lately?—Yes, a very material amount since 1838, when I made a survey of it.

2392. Are all the works finished there?—Yes, and the harbour is made available for line-of-battle ships even at half-tide, whereas, at the time that I made a survey, there was only eleven feet at low water, and now it is a magnificent national harbour fit for anything.

2393. Are

Mr. *E. K. Calver*, R.N.

27 July 1857.

2393. Are you aware that it has been generally taken advantage of by the foreign trade since those improvements as a refuge harbour?—I am aware that it has materially affected it.

2394. In referring to tidal harbours, is it your opinion that no harbour, that can be called a tidal harbour, can be made fairly available on the grand scale of a refuge harbour that has not a certain depth of water?—It is entirely unfitted to meet any want of the sort.

2395. Mr. *Augustus Smith.*] What facilities are there for steamers of any size to coal at Aberdeen?—There is a very noble dock there, and they can coal in the harbour if they like.

2396. Steamers of war upon the north part of Scotland could coal there?—They could, but they could not make an exit except under given circumstances of tide and weather; a steamer might be locked in with a north-easterly wind.

2397. Is there is any facility for coaling in the Orkneys?—Orkney abounds in natural harbours.

2398. Therefore there would be no difficulty there?—None.

2399. There would be no occasion to have a harbour at Wick for steam men-of-war to coal at?—I think not.

2400. Does the merchant navy, engaged in the trade to the eastward, go through the Pentland Firth or to the northward of Orkney?—Prudent men go to the northward.

2401. But actually which way do they go?—The great mass go through Pentland Firth.

2402. Lord *Adolphus Vane Tempest.*] Have you any personal experience and knowledge of the amount of trade on the north-east coast?—Except that knowledge which I have derived from constantly witnessing it over a great number of years.

2403. I have a statement here from a gentleman connected with this district, stating that the number of loaded ships inwards and outwards are 60,702, with a registered tonnage of 8,583,282, and stating that that gives a result of a larger tonnage on that coast alone than the whole of Ireland and the whole of Scotland; do you believe that that is pretty nearly an accurate estimate?—I believe it is, from my own observation.

2404. With regard to the wrecks in the Channel, do not they very frequently take place from collisions, such as steamers running down ships; is not that the general course of the wrecks in the Channel?—It is a frequent cause.

2405. With regard to the capability of the seamen and the commanders of the colliers, I suppose they are as able and experienced sailors as the men who generally command that class of vessels?—They are as able and as experienced; only, as far as I can see, there are not penalties enough exacted for incurring risk.

2406. The words "dangerous decoys," were used in your report with regard to the Tyne, the Tees, and the Wear; I presume that an expenditure of money upon the mouths of those rivers would take off to a great extent the character which you at present give them?—It would alter their character a little; to a trifling extent.

2407. Mr. *Dodson.*] Is not the use of screw steam vessels to convey coals increasing?—Yes, very much so.

2408. Will not that have a tendency to diminish the number of wrecks?—It will.

2409. Is the conveyance of coal by sea altogether increasing or decreasing in the face of the competition of the railways?—That is a question which I cannot answer.

Captain *George Alexander Fraser*, R. N., called in; and Examined.

Capt. *G. A. Fraser*, R. N.

2410. *Chairman.*] YOU are a Captain in the Royal Navy?—I am.

2411. Are you well acquainted with the Irish Channel?—I am.

2412. Do you reside on that coast at present?—Yes, near Dublin, at Kingstown.

2413. Have you navigated the Irish Channel much?—I have surveyed a great portion of the coast.

2414. Do you know the coast both upon the English and upon the Irish side?—I do not know much of the English side.

Capt. G. A. Fraser, R. N.

27 July 1857.

2415. You know chiefly the Irish coast?—Chiefly the Irish coast.

2416. Have you surveyed the coast to the northward of Kingstown as well as to the southward?—Both.

2417. Is there any part of that coast that you consider particularly exposed at the present time to losses?—The south-east portion of the coast is more exposed than the northern portion of it in consequence of the enormous traffic that goes out; the Liverpool shipping chiefly passes through the south channel.

2418. The great bulk of the Liverpool shipping goes south?—Yes, south.

2419. Do you know Carlingford Bay?—I do, very well.

2420. Is not there a good deal of loss upon that part of the coast?—There is.

2421. Could that bay be made a place of refuge at a comparatively small cost?—It could.

2422. What does it require to improve it?—It requires the bar to be dredged to a certain extent.

2423. Would that be sufficient?—Quite sufficient, I think.

2424. It requires no works and piers?—No piers.

2425. And, in your opinion, could the bar be removed with comparative ease at a little cost?—I think so.

2426. If that were done, would it form a good harbour of refuge for vessels passing up that part of the channel?—It would form a harbour of refuge, but there are difficulties attending it; for, with an out-going tide and an in-going wind, there is a very heavy sea; but as it is now, there is no place to run to at all, and, in consequence, wrecks take place.

2427. Between Dublin Bay and Belfast there is no other place?—None at all.

2428. Is there any other point that would be so useful, or where a harbour of refuge could be made so easily?—Anywhere in that vicinity; Carlingford is as near as any other place that could be pointed out; and it could be done at much less expense there than at any other place.

2429. What point would you recommend to the attention of the Committee, to the south of Dublin, where improvements could be made for the advantage of the shipping in those seas?—At Wexford, but it is more a local place for trade; it could not be made a harbour of refuge.

2430. It is not suitable for a harbour of refuge?—It is not suitable for a harbour of refuge.

2431. The improvements which have been suggested with regard to Wexford would be chiefly confined to the local trade?—Yes.

2432. That is, vessels making the port of Wexford?—Yes.

2433. Vessels going up and down the Channel would never think of going to Wexford?—No.

2434. What sort of harbour is there at the mouth of the river, at Waterford?—Waterford is a magnificent harbour of itself. The only drawback to it is the bar. There is a good rise of tide, which they have not at Wexford, but the bar could be removed at a very trifling cost.

2435. Does the bar go entirely across the mouth of the harbour?—Yes, it goes entirely across the mouth of the harbour.

2436. Is that a sand bar?—It has been bored, and is found to be bog chiefly under shingle and sand; the upper portion is nothing more than gravel and sand.

2437. What depth of water is there upon it at low water?—Fourteen or fifteen feet at low water, spring tides.

2438. With that substrata it could be easily removed?—No doubt by dredging.

2439. If it were removed or lowered considerably, there would be a very good harbour of refuge?—If it were dredged to the depth of 18 feet, it would be a most magnificent harbour.

2440. Do you think that it would be much used by vessels?—It is very much used now; it is a sort of rendezvous now for ships coming home.

2441. But it would be still more so if the bar were removed?—Yes.

2442. Is there any other part of the south-east coast of Ireland that is better adapted for a harbour of refuge?—None, unless you go to a vast expense to form a large asylum harbour. It is an exposed coast the whole way round,

and

and that is the turning point into the Channel. The shipping, when they get out, and are caught in the south-west gales, the Liverpool shipping, for instance, are obliged to bear up, and they have no place to run to; they must therefore run right up the Channel or for Waterford, and then they cannot avail themselves of Waterford unless at high water. Capt. G. A. Fraser R.N. 27 July 1857.

2443. Unless they are below Waterford when caught by the gale?—Yes

2444. If they are to the northward, they return to Holyhead?—Yes.

2445. But if they are below Waterford anywhere in the channel, they can go to Waterford?—Yes, and they do so now whenever they can go to Waterford.

2446. If it happens to be low-water they cannot go in?—They generally manage to hold the sea till the tide suits, and then make for it.

2447. Do you know the Liverpool trade?—I have a general notion of it.

2448. I speak of the Liverpool trade down the channel?—Yes.

2449. If a vessel coming home were caught with a strong north-easterly gale in the mouth of the Channel, where would she run for?—They generally heave to, or run back to Cork.

2450. Is there any part of the English coast there which appears to you to offer facilities for refuge for vessels going up and down Channel?—There is Milford Haven; vessels frequently run there.

2451. That is already a good harbour?—Yes, it is a magnificent harbour.

2452. Do you know the north coast of Cornwall at all?—No.

2453. You know nothing of St. Ives?—Not at all.

2454. Do you know anything of Newry?—Not the upper navigation; Newry is at the head of Carlingford Lough.

2455. Do you know anything about the extent of the trade upon those coasts?—No, I do not, not to speak with any certainty upon it.

2456. Are you engaged at present in the superintendence of any of those harbours to which you have referred?—No, I am not employed now at all.

2457. You are not professionally engaged in any way at present?—No; captains in the navy are excluded from serving on the coast surveys.

2458. With the exception of Carlingford Bay and Waterford, there is nothing on the east coast of Ireland that you would think deserving of expenditure on general grounds for vessels passing up that sea?—I think not.

2459. Do you know the south coast of Ireland?—As far as Cork, and generally the whole of the south and south-west.

2460. The Cove of Cork is a fine natural harbour?—It is a fine natural harbour.

2461. And probably answers all the purposes required between Waterford and that point?—Quite so.

2462. The west coast of Ireland is well furnished with natural harbours?—They have fine natural harbours everywhere almost there.

2463. Do you knew the north coast of Ireland?—As far as Donegal.

2464. Is there any requirement for a harbour of refuge there?—No, they have good natural harbours there.

2465. Do you know the Isle of Man?—I have a general knowledge of it.

2466. Do you know Douglas?—I do.

2467. Does Douglas offer a good refuge for ships?—There have been works constructed since I was there, so that I cannot tell exactly.

2468. You have made surveys of Wexford Harbour?—Yes, I have surveyed the whole of that coast, indeed; and last year I was sent over by the Admiralty to re-examine Wexford in consequence of the changes that had taken place there.

2469. There is a sandbank right across the mouth of the harbour?—There is a sandbank right across the entrance to the harbour.

2470. Is there not a channel on each side?—Yes.

2471. A narrow channel?—The northern channel is a wide channel, but it is of a shifting character. There are little sandbanks through it; it is the southern channel that is the narrow channel, and that is the best one.

2472. Is it the deepest?—It is not the deepest, but it is a permanent one; at least, it is more permanent than the other one is; the northern channel is a moving channel, in fact; it shifts with every gale of wind.

2473. But any work to be done there would be available only for the port of Wexford?—Only for the port of Wexford.

Capt. *G. A. Fraser*, R. N.

27 July 1857.

2474. Is there any particular point upon that coast to which you would wish to call the attention of the Committee, as affording general facilities for refuge for ships?—There is no harbour between Kingstown and Waterford; the coast is very much exposed; there is no place of refuge at all.

2475. Is there any place that offers good local advantages and facilities for a harbour?—No, it is quite an open coast; there are no bays or anything of the kind; it must be an open work.

2476. What is the distance between the entrance to Kingstown Harbour and Waterford?—About 110 miles, giving a rough guess.

2477. Then vessels going to the northward would make for Dublin Bay, and vessels going to the southward would make for Waterford?—Yes.

2478. Therefore, there is not much requirement for anything between those points?—No, nothing more than if there was a large national harbour called for, it would be a means of saving a vast amount of property and life connected with the trade of Liverpool chiefly; there is a vast amount of loss takes place on the Blackwater Bank, right abreast of Wexford.

2479. But there is no point where a harbour could very easily be made upon that coast?—No, it is very bad for it; the most favourable spot, but not in the best position, is Cahore Point; that is just about the north end of the Blackwater Bank.

2480. But that point is right out to sea?—It is the only point to the southward that is free from any banks abreast it; there is a distance of about 14 miles between the north end of Blackwater Bank and the south end of Arklow Bank; and in the same way on the north side with respect to an asylum harbour in the vicinity of Carlingford or Drogheda, as about Cahore Point, it is similarly circumstanced; there you have deep water close home.

2481. Mr. *Ewart.*] What are the prevailing gales round by Holyhead and that coast?—The prevailing wind generally in the Channel is about west-south west.

2482. A vessel leaving Liverpool, and being caught in a south-westerly gale, could not get into Holyhead, could she?—She could only get under the arm of the breakwater so as to get sheltered, but circumstanced as the entrance is at present, she could not go into it.

2483. I am speaking of the new refuge harbour at present; in a south-westerly gale could she get into that refuge harbour?—She could not get into the harbour itself; she could get under the lee of the western arm so as to get sheltered; but the entrance to Holyhead Harbour would be dead to leeward under those circumstances.

2484. You know the Isle of Man?—Yes.

2485. Do you know Douglas Bay pretty well?—Not particularly well.

2486. You never surveyed it?—No, I never surveyed any part of the Isle of Man.

2487. Are you acquainted with Liverpool?—I have a general knowledge of it.

2488. There is a bar at Liverpool?—Yes.

2489. Are you aware that they have ever tried to improve it by dredging?—I think it was by raking, not by dredging.

2490. That did not improve it at all?—I should think raking it only would have a tendency to disturb the matter, whatever it may be, from one place, to deposit in another, whereas in dredging you lift it up and take it away altogether.

2491. Mr. *Macartney.*] You have been a considerable time employed on the coast of Ireland, with regard to the coast surveys?—Twenty-five years.

2492. And you have been called upon at different times to make reports connected with applications for harbours of refuge promoted or solicited by different proprietors in Ireland upon that coast?—Yes, the proprietors have applied to me.

2493. Ardglass was one?—No.

2494. Have you ever turned your attention to the establishment of a refuge harbour in the Bay of Dundrum?—Never.

2495. Do you know the Bay of Dundrum well?—Yes.

2496. Could it be made a proper place for a refuge harbour?—Dundrum is an exposed bay altogether.

2497. It would take a very large sum of money to make a refuge harbour there?—Yes.

2498. Has

Capt. *G. A. Fraser*, R. N.

27 July 1857.

2498. Has your attention ever been called to the Point of Skerries, at Dublin, for a refuge harbour?—I have considered it, and tried to draw a comparison between it and Clogher Head, and I never came to any other conclusion than that Clogher Head was the proper place for it; at Clogher Head the water is deep home at the head, but in the vicinity of the Skerries there is a good deal of sand, and I think that any works run up there would in a very short time silt up.

2499. Clogher Head is deeply embayed between the Point of Skerries and St. John's Point?—Yes, it is.

2500. It would be more as a harbour of refuge for the trade of Dundalk Bay and Drogheda Bay than for the general trade of the Channel up and down?—I think for the trade of the coast there generally.

2501. Do you consider that it would be more important to the trade generally of Liverpool, combined with the trade of Ireland between Kingstown and Belfast Lough, that there should be a harbour of refuge at Cahore, rather than by dredging the Bar of Carlingford?—Carlingford could be done at a trifling expense compared to the other.

2502. What would be the expense of constructing a refuge harbour at Clogher Head; would it be about 40,000 *l.*?—You might put another cipher to it, I think; I dare say it would take 600,000 *l.*

2503. What area would you gain for vessels as a refuge harbour by the expenditure of such a sum of money?—It is difficult to say exactly, but I would say there would be from 250 to 300 acres of available anchorage.

2504. The extent of Carlingford, once past the bar, would be five times as large as that for vessels to run into?—Yes, decidedly so.

2505. And they would be perfectly safe when once in?—Yes.

2506. You made a special survey of Carlingford Bar, did you not?—I was merely an assistant there to the late Captain Mudge.

2507. You were with him?—Yes.

2508. His surveys are forthcoming?—Yes, I have one here (*producing the same*).

2509. That is dated 1831. Has there been any subsequent survey to this one?—Yes.

2510. Mr. Ramsay, the engineer of the Newry Navigation, has made several surveys; and Mr. Hoskyn has been actually employed lately, and has discovered a new passage?—Yes, he has discovered a new passage.

2511. And those gentlemen have more recent knowledge from examination than you?—I have not been there since 1831.

2512. Are you aware that, in certain times of the year, a large portion of the American trade of Liverpool goes north-about?—A certain portion of it does.

2513. But invariably, towards the fall of the year in October, that going north-about ceases?—I do not know exactly the time of the year it ceases.

2514. Did you ever have any proposition for establishing a refuge harbour on the north-east coast of the county of Antrim, at the Skerry Islands?—I believe I was the first that suggested it; it would make certainly the largest and the finest harbour that I know anywhere.

2515. What are called the Islands of Skerries, off Port Rush?—Yes, it is half formed already by the islands.

2516. Have you ever considered what sum would make it a refuge harbour to the fullest extent?—No.

2517. The proposition was to close the two passages between the main Skeries and the second Skerries?—I believe the engineers proposed that.

2518. If that was established as a refuge harbour, is it your opinion that the objections to the north-about passage would be obviated in a great measure to the trade of Liverpool?—In a great measure, certainly.

2519. That channel is now perfectly lighted all the way from Torry to Liverpool quay?—Yes.

2520. If there was a harbour of refuge established at Port Rush, a vessel would make that in her course from Halifax or New York at once, and would be there ready to avail herself of orders?—Yes.

2521. And if the state of the finances of the country would admit of it, do you think that it would be a national undertaking of great importance to the trade of Liverpool and Ireland?—Yes.

2522. With regard to Wexford, do you still hold the same opinion, that any money

Capt. *G. A. Fraser*, R. N.

27 July 1857.

money laid out in the improvement of Wexford, as suggested in a Report by Captain Vetch in the year 1855, would be confined entirely to the advantage of the trade of Wexford, and the towns above on the river?—I think so.

2523. No Channel-going vessel, unless driven between the banks and the main, could ever avail herself of it with advantage?—Never; most of the foreign vessels draw more water than Captain Vetch proposes to give at high tide.

2524. He proposes to get rid of the long channel, cut a new channel altogether, and to shorten the distance between the town and the north of the river?—Yes.

2525. Assuming that the importance of this river is such that a grant should be made to it, would an amount of ground be reclaimed that would tend to remunerate for the outlay of that money?—I think so.

2526. What amount of ground do you think?—I cannot say.

2527. A large extent of ground?—Yes, a large extent of ground; and the rise of tide is so trifling, that the cost would be comparatively nothing to reclaim it.

2528. With respect to Waterford, what breadth of water-way would you get by dredging the bar?—Between 300 and 400 yards, I should say, would be quite sufficient.

2529. By dredging about 400 yards in breadth, you say that the harbour would be available for men-of-war of the largest size?—Yes.

2530. What would be the average of the depth of water, removing the bar 18 feet at low tide for vessels to run in?—At low water there would be the 18 feet, and there is a rise of 13 feet at spring tides, and about eight and nine feet at neap tides.

2531. There would be about 24 feet at neap tides?—Yes, upwards of 24 or 25 feet at neap tides.

2532. Would that be sufficient for a frigate?—Yes; frigates go up and down now at high water.

2533. Do you think that for a small outlay a proper refuge harbour would be constructed in the River of Waterford by removing that bar?—I should say so, at a very small expense compared to the great advantage that would result from it.

2534. Mr. *Augustus Smith.*] What is the nature of the rock?—There is one mass like a block o stone; it appears to be a mass of pebbles and large stones amalgamated together by some sort of natural cement, perfectly hard, like a plum-pudding stone.

3535. What depth must you make the channel to render it available for ships?—About 18 feet.

2536. Has it been bored to ascertain the nature of the construction?—A civil engineer has been employed to do that.

2537. You cannot speak yourself to that?—No.

2538. Then you do not know whether the experiments that have been made prove it to be either of a very hard or soft nature?—Only by poking it with an oar and a boat-hook, and that kind of thing, which was the only means we had.

2539. You would have to excavate much lower than that?—Yes.

2540. It may be a band of rock?—I should doubt it, judging from the shore on either side; for instance, a great portion of the low-water shore on the west side of the harbour is submerged bog, and in other parts it is merely a covering of sand and shingle here and there, but under that there is the natural bog.

2541. To what depth is that?—I never bored it.

2542. You mentioned having particularly surveyed the coast of Wexford; have you any survey of the coast in the neighbourhood of Wexford, showing the promontory projecting between Wexford and Waterford?—I have not a plan here, but I surveyed it, and I know every inch of it.

2543. Is there any position there where it would be possible to make anything like a refuge for vessels?—A harbour could be made there; in fact the only available spot at that point is just to the southward of Greenore Point.

2544. That would be entirely independent of any sands at Wexford Harbour itself as to silting up?—Yes, I think so.

2545. The great objection to Wexford is the liability to shift?—Yes; but the tide in the bay is different to that outside; when you come out to Greenore Point you get the Channel tide, and that scours the shore close home, and you will

will see by the form of the banks along the coast that they terminate just to the northward of Greenore Point.

2546. Supposing there was a breakwater run out at Greenore Point, might not that catch the sands brought down from Wexford Harbour?—No.

2547. Are there any favourable circumstances there for constructing a harbour?—It is a bad place, but it is the best place.

2548. In what way is it bad?—The shore is not so bold as at Cahore Point, and in consequence of the sand that is in its immediate vicinity, it must have a certain tendency to silt up.

2549. Is there any facility for obtaining rough rock there?—Not close at hand.

2550. Nor at Carnsore Point?—No, nor at Carnsore Point; I do not know any rock that could be adapted to the purpose, nearer than the Forth Mountain.

2551. What is the nature of the geological formation at Greenore Point, or Carnsore?—The shore is low; I do not know the nature of the formation there.

2552. You do not know whether it is limestone?—No

2553. In fact, there is no particular locality that you could with confidence recommend, in the vicinity of Tuskar, for the formation of anything like a harbour of refuge?—None.

2554. Mr. *Hassard.*] Is not the entrance to Carlingford Harbour, bold; are not the headlands well marked?—They are very low, and very rocky.

2555. Is it well lighted?—It is.

2556. What are the depths in that new channel that has been discovered?—It is given as 18 feet, at low water.

2557. What is the rise and fall of the tide?—Sixteen feet in the extreme.

2558. The new channel is both narrow and crooked, is not it?—Yes; no vessel could run for it.

2559. With regard to the Skerries, do you think that would be a better point for a harbour of refuge, than Rathlin Island?—I have never heard of such a proposition as forming a harbour at Rathlin.

2560. Did you ever hear that Mr. Dargan proposed that?—No.

2561. Did you ever consider the subject yourself when on the north coast?—No; for it is completely unconnected with the main coast.

2562. With regard to Carlingford Harbour, large vessels coming out at high water from Liverpool, if they are caught in a south westerly wind off Holyhead, run back for Liverpool on account of the dangerous nature of the channels?—That depends upon the state of the tide.

2563. They must hit the tide, in order to do it with safety?—Yes.

2564. Could not a vessel caught in a south westerly wind to the northward of the Skerries where she could not fetch Holyhead, run with advantage to Carlingford?—Yes.

2565. That would be a good harbour for her to make?—Yes.

2566. And not much out of her way?—Not much out of her way.

2567. I believe the ground between Tuskar and Greenore Point is foul, is not it?—Yes, but the greater portion is sand.

2568. Would it be a safe place for a large vessel to run to with a heavy sea?—It is a bad place.

2569. And a heavy sea is running there always?—Yes; in the centre of the channel between Tuskar and the main, but not in shore of it.

2570. The channel that Captain Vetch spoke of deepening at Wexford, is in the interior of the harbour?—Yes.

2571. It has nothing to do with Wexford as a harbour of refuge?—You may deepen the inside as much as you please, but unless the entrance is altered, you cannot make use of it.

2572. Are there not a good many rocks and foul ground between Wexford and Waterford?—Yes; it is the most rocky portion of the whole of Ireland.

2573. In fact there have been some losses of vessels upon those rocks?—Not on the Barrels, I believe.

2574. But on the outlying rocks along the coast?—Several wrecks have taken place there in my own knowledge.

2575. Does not the foul ground cease the moment you come to Waterford?—Yes; it is all clear ground there. There is no rock from 14 miles to the east of it.

2576. And down to the westward of Cape Clear there is no foul ground, and no rock?—There are no outlying danger between Waterford and the south-west

Capt. *G. A. Fraser*, R. N.

27 July 1857.

extremity of Ireland, but those lying within a mile of the shore, and there are only two or three of those all together.

2577. If a vessel being to the eastward of Cork, in a south-westerly gale, had to put back, and could not run for Waterford on account of the want of water on the bar, would she not have to wait on the dangerous ground lying along the south-east coast of Wexford and Wicklow?—That depends upon the turning point, whether she might be able to fetch into Milford.

2578. If she did not fetch Milford, what then?—The most dangerous ground is from the Saltees up to Dublin.

2579. You know the entrance to Waterford Harbour pretty well?—Yes.

2580. Is not the land bold, and easily made?—Yes.

2581. And there is a fine light at the extreme entrance?—Yes.

2582. Is not the fair-way of the channel well lighted?—Yes; there are lights for crossing the bar.

2583. That bar is not at the mouth of the harbour?—It is about six or seven miles up.

2584. So that it is sheltered pretty well from a heavy sea breaking upon it?—It depends upon the state of the tide entirely. For instance, when there is an ebb tide, and a south-west breeze blowing in, there is a terrific sea on approaching the bar, and on the bar itself. I never saw it heavier any where.

2585. Is it a short breaking sea, or a long running sea?—It is a long sea before you come to the bar, but a short breaking sea when you get to the bar.

2586. Would not that be obviated by a greater depth on the bar?—I think it would.

2587. To the east of south it is completely shut in?—Yes; and the easterly gales are the heaviest we find.

2588. There would not be much heavy sea upon the bar at that time?—No.

2589. Having once got over the bar, up to the anchorage, is deep water?—Yes.

2590. And there is fine holding ground?—There could not be better.

2591. Have you ever heard of a vessel having lost her anchors there, and being without any ground-tackle?—No.

2592. In such an event, is there any place where a vessel might be beached without injury?—I should say yes.

2593. Do you know the class of vessels usually engaged in the local trade of Waterford?—I do.

2594. Do you know about the average draught of water of the vessels engaged in the ordinary local trade?—They are all small vessels.

2595. Do you consider that the existing state of the bar is a very great disadvantage, and that deepening the bar is absolutely required for the local trade of Waterford at present?—It is; it is absolutely required; it is a great drawback to the port.

2596. Cannot vessels go in and out at all times of the tide at present?—It depends upon the sea; for instance, at low water there is a great fetch on the bar.

2597. Are the steamers dependent upon the tide for leaving Waterford?—No; I believe they go up and down at all times excepting when there is a heavy sea; then they are in the habit of hanging on near the entrance till the tide is ready.

2598. Do you know the Coningbeg Rock?—Yes.

2599. Have you ever considered the advantage of blasting that rock, and placing a light upon the Coningmore?—I think it would be a dangerous experiment to remove the rock; I do not think it is out of the power of engineering operations to place a light on it.

2600. Mr. *Dodson*.] What class of vessels are they that are generally wrecked about Wexford and Waterford?—Chiefly vessels coming out of Liverpool; large and valuable vessels.

2601. And about Carlingford?—They are Liverpool vessels also; they are vessels that have been caught in a gale, and are obliged to bear up; even some of them that have got actually into the entrance of Liverpool almost, when caught in a very severe gale, are driven over to the opposite shore.

2602. Has there been much loss of life?—A great deal; especially towards the south of Ireland, along the Black Water Bank.

2603. Mr.

2603. Mr. *Hassard.*] If a large vessel, going outward bound from Liverpool, was caught to the eastward of Cork Harbour, and was obliged to put back in a south-westerly gale, would it not be a great advantage for her to be able to go into Waterford?—Yes; that is the best place, even though there were an asylum harbour in the channel, because there there would be a saving of time, and a saving of wear and tear, and, of course, of natural anxiety.

Capt. *G. A. Fraser*, R. N.

27 July 1857.

Mercurii, 29° die Julii, 1857.

MEMBERS PRESENT.

Mr. Baring.	Lord John Hay.
Mr. Clay.	Mr. Kendall.
Mr. Dodson.	Mr. Lowe.
Mr. Ewart.	Mr. Macartney.
Sir Robert Ferguson.	Mr. Philipps.
Mr. J. H. Gurney.	Sir Frederick Smith.
Mr. Hassard.	Mr. Augustus Smith.

THE RIGHT HONOURABLE ROBERT LOWE, IN THE CHAIR.

Mr. *Ralph Ward Jackson*, called in; and Examined.

2604. *Chairman.*] YOU reside in Hartlepool?—Near West Hartlepool.

2605. You are one of the Commissioners of the Port of Hartlepool?—I am.

2606. Have you turned your attention to the subject of harbours of refuge?—I have.

2607. Have you any suggestion to make to the Committee upon the subject?—I think it very important that there should be a harbour of refuge on the east coast, to which I principally belong.

2608. Why do you think it important?—In consequence of the great loss of life and property by shipwreck.

2609. At what point do you think it desirable that there should be a harbour of refuge on the east coast?—I think it should be about midway between Flamborough Head and the Fern Islands.

2610. Have you fixed in your mind upon the situation that you think would be most suitable?—That point is in Hartlepool and Tees Bay, the deepest part of the bight of the coast.

2611. Why do you think that will be the best situation?—Because it is there that the principal portion of the wrecks on that coast occur. The vessels are all embayed between Flamborough Head on the south, and the Fern Islands on the north, a distance of about 100 miles, with Hartlepool Bay in the very centre of it.

2612. Have you determined in your own mind what would be a proper spot for the harbour?—Hartlepool Bay is the one to which my attention has been principally drawn, arising, in a great measure, from the investigation that took place in Parliament in 1855, when a measure was brought forward for converting the Bay of Hartlepool into a harbour of refuge upon a plan designed by the late Mr. Rendel, and which is shown upon the chart in the room.

2613. Who brought forward that plan?—The public Port Commissioners of Hartlepool, of which I am one.

2614. What became of that?—A Bill was passed after a lengthened inquiry, and a small portion of the work has been proceeded with.

2615. Was this Bill for a harbour of refuge, or for improving the Harbour of Hartlepool?—It was specially for a harbour of refuge.

2616. And the works had been begun?—Yes; about 720 feet of the northern pier is executed.

2617. What would be the dimensions of that harbour?—About 1,000 acres at high-water spring tides, and 840 acres at low-water springs.

2618. What would be the depth of the water at the entrance?—Thirty feet at low-water spring tides.

Mr. *R. W. Jackson.*

29 July 1857.

Mr. *R. W. Jackson.*

29 July 1857.

2619. Would it be protected from all winds?—Yes, from all winds.

2620. Would it be easy of entrance and egress?—Yes, perfectly so. It was suggested in the committee that sat upon it that it would be desirable to leave openings in both the north and south piers, which would be directed by the Admiralty as the work proceeded. The vertical rise of tide in that bay is, spring tides, 16½ feet, neap tides, 12½ feet.

2621. What was the estimated expense of the works?—The total estimated expense of the work by the late Mr. Rendel, adding contingencies, was 800,000*l.* to complete it; but a very large portion of the anchorage and refuge would be obtained by an expenditure of about 400,000*l.* or 500,000*l.*

2622. Do you consider that that estimate would be exceeded if the works contemplated by Mr. Rendel were carried out?—Mr. Rendel always stated that he was satisfied that would be sufficient to complete the work.

2623. Is that your opinion too?—Yes.

2624. I believe you are a very competent judge of these matters?—I have had some experience in them.

2625. When do you calculate the works will be completed?—To be completed they would take six years; but the real advantage that would be obtained would be within the first three or four years, because the lower part of the work would be completed sufficiently to ward off the heavy seas falling into the bay.

2626. From what quarter?—From the north-east to the south-east.

2627. It is, I suppose, against the easterly gale that the harbour is required?—From the south-east to the north-east.

2628. In the first three or four years the protection against the north-east will be adequate?—It will be very greatly advanced, because every year the work that is formed will add very large protection to the bay, more than commensurate with the distance of the pier executed.

2629. Where are the funds derived from for this work?—At present, there is a public port-toll payable to the commissioners, of whom I am one, for all ships entering within the limits of that refuge harbour.

2630. Is that an ancient toll?—It has been leviable for the last 45 years.

2631. Under Acts of Parliament?—Under Acts of Parliament, commencing in 1813, without reference to anything of the trading harbours.

2632. What is the amount of the toll?—About 7,000*l.* per year.

2633. How is it levied?—Upon all ships that enter into the trading harbours. There is a power to the commissioners to levy it within the prescribed limits of the refuge harbour; but they do not at present levy anything, excepting for ships that actually enter the two trading harbours.

2634. Is it on the tonnage?—Yes.

2635. What is the amount?—It is 1*d.* per ton for vessels that load in the harbours, and 1*d.* and 2*d.* in cases of refuge; and it varies according to the amount of money expended upon the piers, as given in the schedules in the Act of 1855. When 100,000*l.* and 250,000*l.* are expended the toll is increased.

2636. To what amount?—To 25 per cent. more in one case, and 50 per cent. in the other on vessels loading.

2637. Both the one and the other?—Yes.

2638. Where do you get the funds from?—They arise from this toll.

2639. You are borrowing the money for these works, are you?—The commissioners wished to borrow money.

2640. How have you made the work that is done already?—The Commissioners had a surplus revenue, and they raised some money temporarily from the bankers; they have not borrowed any.

2641. They have not effected any formal loan?—There are some old loans, about 14,000*l.*, for the execution of other works; but for this special work they have not borrowed any specific sum.

2642. You are anxious to borrow money?—Yes, upon the credit of the public toll.

2643. Of the toll you receive already?—Yes.

2644. And the increased toll?—Yes, the increased toll, consequent upon the increased protection.

2645. What will the increased toll amount to, do you calculate?—By the expenditure of about 250,000*l.*, the tolls would then be about 15,000*l.* a year, and after that period it would gradually increase up to 60,000*l.* a year, according as protection was given.

2646. The

2646. The trade of your harbour is increasing very rapidly, is it not?—The trade of the west harbour is very much increasing.

2647. Can you mention any facts with regard to that to the Committee?—I have not the list with me which I had prepared for the purpose of giving to the Committee.

2648. Can you state any results, or give any idea of the rate at which the trade is increasing?—The old Hartlepool Harbour has been established since 1835, and that trade has kept at a steady rate.

2649. You mean that it has not very much increased the last few years?—Yes. West Hartlepool is a new place; it has been established about nine years, and has approached in its coal exports the old harbour; and in the merchandise to the Baltic, and Hamburgh, and other north of Europe ports, it exceeds altogether Newcastle; and last year it was within 83,000 *l.* of the total merchandise exports of the ports of Newcastle, Sunderland, and the Tees.

2650. To what do you attribute that extraordinary increase?—I presume to the capabilities afforded by the inner harbour.

2651. Is there good railway communication from Hartlepool?—Yes, good railway communication to all parts of England.

2652. You said you were anxious to borrow money; from that I presume you have not succeeded in doing so?—We have not succeeded in doing so; it must be upon the faith of the public toll that the money would have to be subscribed. There is at the present moment a revenue of 7,000 *l.* a year, which is, of course, a good income at all events for an expenditure of 250,000 *l.*, which is the point to which the Act of Parliament directs the high rate of toll to be levied.

2653. How do you make that out; it would not be three per cent., would it?—The 7,000 *l.* a year, together with the increase, that is, 50 per cent. increase upon the tolls; but that is irrespective of the protection that would be given by the piers, and the payment of refuge tolls by shipping taking refuge there.

2654. With this to offer, have you found a difficulty in obtaining a loan?—We have found a difficulty in obtaining a loan; we cannot ask private individuals to invest money in that way.

2655. Why not; is not the security ample?—It is a public toll, and it is not one of those transactions for which you can go into the private money market.

2656. Have you applied to the Exchequer Loan Commission?—We applied to the Public Works Loan Commissioners.

2657. Is that the same as the Exchequer Loan Commission?—Yes; Mr. Willink is the secretary, and I made an amended application on behalf of the Port Commissioners about a week ago, but I have not received an answer.

2658. Have you any objection to state what the nature of your application was?—It was for 40,000 *l.*

2659. On what terms?—Five per cent. interest, with the redemption of the capital in twenty years.

2660. And a sinking fund besides?—Yes, a sinking fund with the interest, by way of annuity.

2661. And that is now under consideration?—Yes, I have received no answer to it.

2662. Do you see a prospect of obtaining all the money you want from that quarter; you made an application before?—For a larger amount. We made an application in the first instance for 100,000 *l.*

2663. On what terms?—We left it to them to specify the rate of interest.

2664. What answer did you get to that?—That they did not feel themselves at liberty to grant a loan upon those terms.

2665. What did you understand the objection to be; to the largeness of the amount?—I do not know.

2666. The terms you left to them, therefore it could not have been the terms?—I told them exactly how the public toll was levied, its amount and its prospective increase, and precisely the same figures as were produced in Parliament in 1855; but I believe they did not feel themselves justified in advancing money at any lower rate than what the Act of Parliament prescribed to them.

2667. What is that?—Five per cent., unless it is commuted by leave of another department.

2668. Are you of opinion that the harbour of refuge you are preparing will be adequate for the purposes of the public altogether?—Perfectly adequate for the

Mr. R. W. Jackson. 29 July 1857.

the whole of the coast between Flamborough Head and the Fern Islands, so far as regards its extent, and depth of water, and its protection.

2669. I suppose your object was rather to make a good harbour for Hartlepool than a harbour of refuge; was not that the primary object?—No; even before West Hartlepool was established there always has been a project for the establishment of a harbour of refuge there; in fact, the origin of the Port Commissioners in 1814, when no private harbours were established at all, was to create a fund for the purpose of executing outer sea-works, for the general protection of the shipping, Hartlepool Bay being at that time always resorted to in gales of wind.

2670. Your duty as a commissioner was rather for the general interest of the shipping between the limits you have mentioned, Flamborough Head and the Fern Islands, than with reference to the particular interests of Hartlepool?—I cannot deny that Hartlepool would be very materially benefited by a harbour of refuge being located there, but I conscientiously believe that to be the best place, though if another place was found equally good, I should be equally satisfied.

2671. Your duties as a commissioner would enable you to suspend the claim of Hartlepool if a better place could be pointed out?—Precisely; a harbour of refuge in that place is most essential, and though I admit that the trading harbours of Hartlepool will be more materially advantaged by a harbour of refuge in that immediate locality, still that does not supervene my own opinion of the importance of a harbour of refuge being placed somewhere in that locality.

2672. What have you to suggest to this Committee on the subject?—I have no object to suggest to this Committee, excepting that, if it be their pleasure to report that a harbour of refuge is necessary in that locality, they will recommend advances by Government, whether in the shape of interest or grant. Of course I do not presume to suggest to the Committee; I can only offer my own opinion what would be the most advantageous mode of supplying money for the purpose of a harbour of refuge upon our coast.

2673. What would that be?—My own opinion very decidedly is, that it should be on the terms of shipping paying at the time they take the refuge.

2674. You think that the shipping ought to pay when they enter the harbour of refuge?—Yes, as contradistinguished to what is called a passing toll.

2675. Will you give your reasons for that?—Because the question of passing toll is one that has gained a very decided objection in the minds of all shipowners; and no one that is a prudent captain ever objects to go into a harbour of refuge merely because he has a toll to pay, provided that toll be moderate.

2676. Is not the objection to passing tolls rather that shipping are made by them, at present, to pay for harbours that they cannot possibly use?—It is to some extent, but not altogether. I should not put the question of ships paying for every voyage for a harbour of refuge in the same category as ships paying for lights, because lights are used in summer time, in every night of the year, whereas harbours of refuge are not so.

2677. But no man knows, when he sets out on a voyage, whether he will not require a harbour of refuge before its termination?—There are six months in the year when he will never calculate upon such a gale of wind as to require a harbour of refuge; in the summer months, for instance.

2678. You say no prudent captain would be deterred; but do not you think many captains would be deterred?—No, I think not many; I think it is a theoretical opinion, because in a hard gale of wind upon the east coast no captain will ever study the question of a few pounds at such a time.

2679. Is it not likely that the owner will be displeased with the captain for taking refuge in one of those harbours, and the very fact of the precaution that he has used will be used as an argument against him, that the danger was not sufficient to justify it?—No; an owner may find fault with a captain for having taken the harbour in some cases, but when you come to take the whole shipping and the loss upon that coast, and consider it as one man (which is the best way of testing it), the loss sustained between Flamborough Head and the Fern Islands cannot be less every year than 125,000 *l.* Now, supposing a harbour of refuge to be made in Hartlepool Bay, and the tolls to be precisely the same as at present enacted by the Act of 1855, and the harbour of refuge was to cost even 1,000,000 *l.*, and the interest at 5 per cent., which is only 50,000 *l.*

50,000 *l.* a year, and there is a dead loss at this moment of 125,000 *l.* a year, at the end of the year the shipowners, as one man, will be into pocket 75,000 *l.*, and therefore you must take the whole year and the loss at the present moment, and what he would have to pay supposing the tolls to be continued at Hartlepool Harbour at the same rate as prescribed by the Act of 1855, and he would be into pocket upwards of 70,000 *l.* a year by the protection thus given to him; therefore there is nothing to prevent him, or all the captains, from seeking the harbour of refuge, and the owners themselves would find their own purses so much advantaged at the end of year, that I do not think they would quarrel with any captain for going into the harbour and saving the vessel, especially when this maximum toll, as prescribed by the Act of 1855, for a 300 ton ship is not the cost of the smallest sail that any ship carries in a gale of wind.

Mr. *R. W. Jackson.*

29 July 1857.

2680. You are of opinion that it is better to provide for this harbour of refuge by tolls upon the shipping entering it, than by a passing toll?—It is better, I think, decidedly to provide for it by the shipping entering it than by a passing toll; if the Government make it without a toll, the shipowners will be glad to have that boon; but of the two (namely, a passing toll, or a toll when using the harbour), I should very much prefer the latter. I have a large interest myself in shipping on that coast, and I unhesitatingly state that I would infinitely rather pay for the advantage I get from a good harbour of refuge than I would pay a regular passing toll, though it might amount to the same sum in the year.

2681. Is there anything else you wish to suggest to the Committee?—No, I did not appear for the purpose of giving any suggestions at all; I have prepared a statement of the trade of the whole coast, and every port upon the coast, not particularly Hartlepool, for I have taken the Tyne and Berwick, and Sunderland and Seaham, the Tees, the Humber, Whitby, and Scarborough, showing exactly what was the trade of the whole of that district in 1856.

2682. Will you put that in with your evidence?—Yes.

2683. Mr. *Clay.*] You said that a moderate toll would not deter any prudent captain from entering a port of refuge in a gale of wind; what is your notion of a moderate toll?—Such, for instance, as 7 *l.* 10 *s.* 8 *d.* for a 300 ton ship loaded.

2684. You would have it a tonnage toll of course?—A tonnage toll entirely; I am putting it now at the very maximum. There is a graduated scale; it goes up from 1 *d.*, and then to 1½ *d.*, and then to 1½ *d.*, and then for refuge ships it is 1 *d.* and 2 *d.* for light, and 2 *d.* and 4 *d.* for loaded; and then it goes up to 3 *d.* and 6 *d.*; for loaded there are four schedules to the Act.

2685. Have you made any calculation of how many vessels would be likely annually to enter the harbour of refuge, so as to see whether the amount produced by such a toll would at all pay an adequate interest on the expense of making this habour?—Yes; I have a very detailed statement, but I have not got the paper with me.

2686. Can you recollect roughly about the number of vessels and the tonnage you calculated, or the gross amount that you calculated the toll would produce?—Yes. The opinion generally is (and it is my own) that every ship upon that coast has occasion, one year with the other, to seek a refuge harbour three times in the year. I know the entries and the clearances from every port on that coast. The average number of voyages is calculated at 12 from the different coal ports, and therefore, if there be so many vessels clearing, and that is divided by the 12, it really produces 8,853 ships between the River Tees and the River Tyne; and putting those ships at what they really are, an average of 142 tons, and entering the harbour three times in the year, a revenue would be produced of 54,999 *l.* I find that the average number of vessels of the whole of the kingdom, England, Scotland, and Ireland, to be 132 tons, and with the Isle of Man and the Channel Islands, about 130 tons; but the average of the vessels on the coast between the Tees and the Tyne is about 142 tons. Now, between those two rivers in 1856, including light vessels, there were not less than 106,233 vessels within 25 miles of that coast, the total amount of the United Kingdom being 410,075 vessels; and I believe I may say, with considerable confidence, that the shipowners on that coast (and I will go as far as Flamborough Head to the south, and the Fern Islands to the north) would be too happy to pay something like 50,000 *l.* a year as the interest of the money upon a harbour of refuge in that locality rather than submit to an annual loss of not less than 120,000 *l.* a year, as they are now doing; and whether it be in the shape I will not say of a passing toll (I would like

Mr. *R. W. Jackson.*

29 July 1857.

like to alter that term, and call it a refuge toll); whether it be paid as a district refuge toll or for entry, at all events the result might be the same; but I do not think that it is an appreciable argument that because there is a toll payable by ships for entering a refuge harbour, the majority of ships will not take it, particularly if the toll be moderate.

2687. Or any large proportion of them, not to say a majority?—I should say there is not 1 in 500 scarcely upon our coast that would keep the sea, and thrash the sea in a dark November night, instead of going into a harbour there, and paying something like 3*l.*, or less than that.

2688. Mr. *Dodson.*] When you stated that 132 tons was the average of all vessels, did you take all vessels, or vessels engaged in the coasting trade?—I took all; the whole of London, the whole of Liverpool, and the whole of Bristol; whatever trade there is. It is not, in fact, 130 tons, for the average tonnage of the whole coasts that I have alluded to. The great coal port coast is 142; the tonnages being in this proportion: Newcastle, or the port of Newcastle, is 150 tons, the port of Sunderland is 134, the port of Hartlepool is 144, the port of Stockton is 104, the port of Whitby is 48, the port of Scarborough is 63, the port of Berwick is 62: but of the United Kingdom, Isle of Man and Channel Islands, the average tonnage of every description of vessel that entered and cleared in the custom-house last year with cargoes is 130 tons.

2689. You stated that the trade of Hartlepool was increasing; is that trade the coasting trade more especially, or the foreign trade?—The foreign trade is increasing in a far greater proportion than the coasting trade.

2690. The foreign trade from Hartlepool goes principally to the Baltic and the north of Europe?—To Hamburgh and the Baltic, and other ports in the north of Europe. The first six months of this year, the merchandise exports from West Hartlepool alone were upwards of 100 per cent. increase.

2691. And the course of those vessels would lie more at right angles away from the coast: they do not pass up and down?—Going direct to the Baltic or Hamburgh, they pass right across the sea; but in going from the Humber, vessels bound to the north of Europe do pass within 80 miles of Hartlepool Bay; far nearer, in point of fact, than any port on the foreign shore opposite.

2692. Have you any return beyond the returns of the tonnage belonging to those different ports, of the tonnage that passes up and down this coast in the course of the year?—Yes, from the whole of the east coast. I can only tell the entries and the clearances.

2693. You have no returns showing the passing trade up and down the coast?—No, I do not know where they are all going to, but I am quite satisfied there is not less passing the east coast, and passing within almost sight of Hartlepool Bay, than about 150,000 ships a year.

2694. And you would take the average tonnage of those 150,000 ships at 140 tons?—Yes; the average is greater upon that coast than over the whole of the United Kingdom.

2695. Do the wrecks that take place upon that coast consist principally of colliers?—They are colliers, as well as vessels that are trading backward and forward; coasting vessels and vessels coming from abroad, likewise.

2696. Is the greater proportion of the wrecks colliers?—Yes, the greater proportion of the wrecks is colliers.

2697. Is the use of the screw colliers superseding the old-fashioned sailing colliers to any extent?—No, I think it is more an addition; the screw collier is at present used almost entirely to London, and to the foreign ports, but it does not go to any of the bye ports. In the smaller ports we must have small ships; the screw collier is a long vessel, and there is not accommodation for that class of vessel in the smaller ports.

2698. You think that the tendency is not to substitute screw vessels for the old-fashioned colliers?—Not to substitute; I think there is a larger class of sailing colliers building and coming into use as well as the screw colliers.

2699. An improved class of sailing colliers?—Yes, an improved class of sailing colliers.

2700. Is the trade in seaborne coal increasing in the face of the competition of the railways carrying coal?—Yes, it is increasing; the railways are comparatively limited in their use of locomotive engines and carriages, and the sea is not limited.

2701. The railway competition does not seriously affect the interest of the colliers?—Not the quantity, it does perhaps in the price; it enables a competition of price in London, which may be beneficial to the consumer.

2702. Then the railways do carry a considerable quantity of coal, I presume?—Yes, but they do not carry it principally from the same locality as the ship does, it is chiefly inland coal.

2703. Has the trade of Hartlepool been at all interfered with by the railway competition?—Not at all.

2704. Mr. *Phillips.*] I think you said that the estimated loss in the coal shipping is 120,000*l.* a year?—Yes.

2705. You thought they would pay 50,000*l.* a year for the use of the harbour?—Yes.

2706. There would then be a balance of 70,000*l.*; supposing the harbour of refuge were constructed, what would be the balance of the loss?—It must be very small, the benefit would be very great taking those two figures as a basis; but supposing that the harbour of refuge did not relieve every ship from her distress, there would be some deduction to be made from the balance between the 50,000*l.* and the 100,000*l.*

2707. Supposing the harbour of refuge made and in existence, what do you think would be the proportion of loss in other places, of shipwreck; would there still be a large amount of liability to wreck and to loss, and if so, to what extent?—I think the extent would be very small, knowing the coast as well as I do; that both in loaded and light ships there would be comparatively very little loss between Flamborough Head and the Fern Islands. The centre of that coast is Hartlepool and Tees Bay.

2708. And in your opinion that is the best point, is it?—My own opinion is that very decidedly; but nautical gentlemen have been examined, who have given it as their opinion, perhaps more strongly than I ought to do, residing in that locality; my own individual opinion is, knowing something of the sea and a great deal of that coast, that that is the true place for a harbour of refuge, because the chart itself depicts what has been the damage in the 10 years; those ships were not bound to the Hartlepool trading harbours, but they were ships passing, and they were not able to get into those trading harbours; but in the last year, 1856, there were no less than near 1,200 ships that positively entered those trading harbours safely as a refuge, bound to other places; the Admiralty have the power to require that there shall be openings in the refuge harbour piers.

2709. In your own individual opinion would those openings be beneficial or otherwise?—I have an idea that the openings would be beneficial, but in all these large works it is very desirable, of course, to observe the consequences of the works as they proceed; but I have my own opinion that a perfectly closed bay might prove disadvantageous, but yet Mr. Rendel laid it out as a closed harbour, and Parliament required that the Admiralty should insist upon openings if they thought proper, during the progress of the works, and those piers, of course, can under the Act of Parliament, being within the limits of deviation, be altered and deviated in any way.

2710. If there was an opening, would you have it a large one or a small one?—Not less than 500 feet.

2711. You think it would be dangerous to have it less than that?—Yes, for the entry of it. Kingstown Harbour is about 880 feet wide.

2712. If it is narrow, it would be dangerous you think?—If it is narrow, and there would be the greater current through both in the flood and in the ebb tide.

2713. Would it damage the harbour inside if it was a wide opening?—Not if the piers are put properly, so as to ward off the sea. You may make a thousand feet opening, and still put the pier in such a way as to overlap, so as not to damage the ships entering the harbour, but so as to keep off the sea.

2714. Are those piers marked on the chart right in your opinion?—No; I should alter the head a little myself; I should open the north pier a little more, and bring it lower down upon the plan, and slightly alter the south pier, not make it quite so flat to the sea; I would bring it more down, so that in cases of the heavy north-east gales ships would be able to slip round that pier a little easier. According to my own opinion, if the north pier was a little drawn down, it would keep the sea out. That is a matter of detail.

Mr. *R. W. Jackson.*

29 July 1857.

2715. That is your own individual opinion?—I have that opinion that there should be a slight alteration there, and the opening must be determined by the progress of the work. I heard Mr. Calver's evidence, and essentially he is an advocate for having a passage through the harbour.

2716. A harbour of refuge ought almost in principle to be a succession of breakwater, as it were, so that ships can get behind it?—Yes, you want to kill the sea, that is all

2717. So that it should not be entirely closed and hemmed in, but they should be able to get in at different points; is that right or wrong?—It is quite right that they should get in at the best places. If it was important to have more than one opening, that may be an advantage provided it does not allow the sand to get in, which would be another injury. The two considerations are the sand and the sea.

2718. Is there sand there?—Yes, there is sand in the bay; it falls into the bay, and I believe that Mr. Rendel's idea in making it a closed harbour was really to keep out the sand, because the sea you can kill by another process. But if you had the openings, you might admit the sand, but his idea was that it would not go in there.

2719. Would it be impossible to dredge that?—It is too deep there. The anchorage there is 25 or 26 feet at low water spring-tides within.

2720. Mr. *J. H. Gurney.*] Your estimate of 120,000 *l.* as the annual loss to the shipping interest, includes, if I understand rightly, the coast from Flamborough Head to the Fern Islands?—It does.

2721. Does not a portion of that loss of 120,000 *l.* annually, fall on the underwriters?—Where the ships are insured it falls; but in the north of England nearly all shipowners are insurers. They have what are called mutual clubs; and therefore all ships that are entered in those clubs do contribute to the losses of their neighbours, so that virtually it is a loss upon the shipping.

2722. Have you any estimate of the proportion of the 120,000 *l.* which by being insured with underwriters, must be subtracted from that which is an actual loss to the shipping interest?—No, I do not know what those ships are insured in, but I have estimated the actual loss to the ship. How they get repaid by insurances I cannot tell; the majority of the cases are in insurance clubs, and therefore the one ship is actually contributing to the loss of another ship. If they were insured in Lloyd's, they would of course get a sum of money for the loss of that ship, and the other ships would not contribute. At the same time it is a loss to Lloyd's. Wherever the loss is, whether at Lloyd's or private insurances, there is that money to make up by some process.

2723. But the loss upon insurances at Lloyd's is not a loss incurred by the shipping interest?—No; but it is a loss in shipping, and you find by the wreck return of last year there was no less in the United Kingdom than 10,014 men either lost or thrown out of employment by casualties and wrecks.

2724. In case of a harbour of refuge, in whichever way the dues were collected the underwriters at Lloyd's would neither directly nor indirectly be parties to the payment of those dues?—No; but Lloyd's no doubt would insure vessels passing up and down the coast at much less than they do now.

2725. Mr. *Hassard.*] You heard the evidence of Mr. Calver?—Yes, I did.

2726. Did you hear him state his opinion was, that a harbour so contructed would silt up?—Yes, I did.

2727. Is that the harbour as designed by Mr. Rendel?—It is.

2728. Is it your opinion that by making openings inside the angles, a stream could be turned through that harbour, similar to that which he thought would run behind these breakwaters?—Yes, decidedly.

2729. And that might tend to keep that harbour clean as he proposed?—Yes; if that harbour has a tendency to silt up, then the plan suggested by Mr. Calver of putting a breakwater in front of one of the openings in these piers would accomplish the same object. The mere question of the placing of those piers as designed by Mr. Rendel, or suggested by Mr. Calver, would be a matter of easy arrangement with the Admiralty.

2730. Do you think that the openings in those piers would obviate the necessity of the breakwater proposed by Mr. Calver?—It would, provided he was of opinion that the two entrances at the sides would be sufficient without the entrance in the centre. I consider if there is an opening on the north side

and

and an opening on the south side, there is no necessity for an entrance in the centre, and they might therefore join together and be the breakwater that Mr. Calver suggested. It is a mere alteration of design, without altering essentially the principle of converting the Bay of Hartlepool into a harbour of refuge, those being the terms used by Parliament in 1855, that it was highly important to convert the Bay of Hartlepool into a large harbour of refuge.

2731. The site of those piers might remain nearly the same as they are now, with the difference of making it more acute towards the entrance?—Yes, by closing, as suggested by Mr. Rendel, or opening entrances at either side, as suggested by Mr. Calver.

2732. You would not alter the angle at the entrance of those piers if there was to be no opening there?—No. They would be drawn together. They may be put right in front, as Mr. Calver suggested, driving off the heavy seas in that bay, and nobody knows the coast better than Mr. Calver, and I should bow with very great deference to an opinion that he suggested as a design for converting Hartlepool Bay into a harbour of refuge. There are the elements there, and no other Act of Parliament is required for the purpose of diverting those piers in any manner that better opinions might suggest.

2733. Is the system of works there the same as that which is pursued at Portland and Holyhead?—No; the 720 feet that has been commenced from the headland down to the edge of the rocks down to low water, is upon the same principle as at Dover, building from the base with large concrete blocks, and faced by freestone masonry.

2734. What is the plan to be pursued in deeper water?—Mr. Rendel contemplated very large blocks, even to the extent of the weight of 20 tons.

2735. To build from the bottom?—Yes, to build from the bottom as at Dover. I believe he thought it was a less expense than using rubble; there is plenty of large rubble in the country, but not so immediately near as at the works at Holyhead or Portland; but there is easy access to the quarries. There are stones in an unlimited quantity, and of a very large size; but Mr. Rendel did contemplate the building from the bottom by very large blocks, three times the size of those used at Dover. He always stated that there was the same expense in labour for a large stone as for a smaller stone; it only required a larger and stronger plant. But in that south pier, it will be observed, it comes upon a rock which is a half-tide rock, so that there is not so very large extent of work in deep water.

2736. If there was any staging, if it was converted into a breakwater upon Mr. Calver's principle, it would be available?—No, the staging is removed for the 720 feet; but there is no difficulty in putting up staging if the plan that Mr. Calver suggested should be adopted, whether it was rubble work or other work.

2737. Is the staging required for lowering the concrete blocks?—Yes. He would lower them in very large quantities, and have them there ready, of not less than 20 tons, and perhaps four feet in depth. Two four-feets is eight feet, and that process will soon heave off the great sea and ground swell in that bay.

2738. And they are lowered by a staging?—Yes; that was Mr. Rendel's plan.

2739. You said the toll upon ships entering is 1*d.* a ton; what is the maximum toll per ton that you will be allowed by the schedules of the present Act?—The maximum toll for ships taking refuge, is 6*d.* for loaded ships per ton, and 4*d.* for light ships, after 250,000*l.* is expended.

2740. And up to the extreme limit of the expenditure?—Yes. They may go to 1,000,000*l.*, and there is no further advance; and the calculation that I gave the Committee before, of 7 *l.* 10 *s.* 8*d.*, is the maximum charge for a loaded ship of 300 tons register; and there is an 8*d.* which is paid for the ship as an old port toll; but it is levied, not per ton, but per ship. It goes now into the same fund; but it was originally a town toll, and Parliament, in 1855, took it away and gave it to the port, for the benefit of the shipping.

2741. Is not 6*d.* a ton very high?—Not for a loaded ship; but that is the maximum; they are not bound to charge that; it was higher when the Bill was introduced, but Mr. Cardwell, who was on the Committee, recommended that it should be lowered, and it was lowered.

2742. Do vessels entering the harbour for trading purposes, and not for purposes of refuge, pay this high toll?—No, the vessels that enter for trading do not

Mr. *R. W. Jackson.*

29 July 1857.

pay so high, because they have the inner tolls to pay to the trading harbour as well.

2743. Do they pay an outer toll also?—Yes.

2744. But upon a lower scale?—Upon a lower scale. They pay now 1*d.* for trading.

2745. Will that rise?—It rises to 50 per cent. when they have spent 250,000*l.*

2746. What would be the maximum then?—One penny halfpenny; and then they have the trading tolls to pay besides.

2747. And that goes to a different fund?—Perfectly. I only here represent the Port Commissioners, which is perfectly distinct from the trading harbour's proprietary.

2748. You say that you are in favour of a harbour toll, instead of a passing toll?—Yes.

2749. When the system of insurance is by mutual insurance, if a vessel be insured in a company of mutual insurers, the individual owner of that vessel will pay that toll, will he not, for the benefit of the whole body of insurers?—Yes, but that applies to the whole body of insurers; if they all pay for the ships going in, at the end of the year they will find it very greatly to their advantage.

2750. Of course, if every one paid upon the same number of vessels it would come to the same thing; but in the case of a single ship, it will be a charge upon that individual owner for the benefit of the entire body?—Yes, speaking individually it will be so.

2751. But the passing toll would be distributed over all the owners forming that body of mutual insurers?—Yes, it would; but I am sure that the whole body of shipowners on the east coast would prefer paying it when they use the harbour than in the nature of a passing toll. There is a peculiar way of viewing these things, and the shipowner likes to pay for what he gets.

2752. Do you not think that that harbour would silt up if openings were made in the pier such as suggested?—No, I do not think it would; I am not apprehensive of its filling up, even according to Mr. Rendel's plan; but I am quite willing to concede to others of better judgment, and to leave the harbour in a more disturbed state than Mr. Rendel's plan would leave it; but that harbour with openings, such as Mr. Calver suggested, would not be anything like so rough as Cherbourg Harbour.

2753. Mr. *Augustus Smith.*] Did I rightly understand you to say that a part of those works are now in progress?—Part of them have been executed.

2754. How far down?—From the heugh to the low-water line, which is the end of the rock.

2755. Where the vessels are marked on the chart?—Yes.

2756. Is it now in progress?—No, it is finished to that point.

2757. Is there any banking up against it, of shingle or silt, from the north-east?—None whatever.

2758. Is there any movement of shingle or sand along that coast?—There is no shingle at all. You see a little rind of sand that there is along the coast, going to the north; there is a slight rind of sand upon the hard clay, which is the anchorage, and a capital anchorage it is.

2759. Is there any movement or accumulation of sand or shingle along that part of the coast?—There is a movement of sand from the south, particularly in south-east gales, but not in north-east gales.

2760. Does that come from the mouth of the Tees?—Partly from the mouth of the Tees; but also right away down the coast we find, in the prevalence of south-easterly gales, all the heads upon that coast are more or less charged with an accumulation of sand upon the south side.

2761. That objection that was made to Redcar formerly, of sand being likely to accumulate in it, is not correct?—Redcar would accumulate sand in the same manner.

2762. The breakwater would have been on the north side?—No; the harbour was to be formed by piers built upon the two longitudinal ledges of rocks, and when built out to two miles into the sea would cause a deposit of sand from the south in a south-east gale.

2763. Therefore the evidence given before a former Committee, that the sand would be brought from the mouth of the Tees, is not correct?—It is not correct. I do not think that it would come from the mouth of the Tees for this simple reason,

reason, that it is ebb-tide out of the Tees at the same time as it is ebb-tide coming past Redcar; consequently it would not flow in there.

2764. You used the terms refuge and passing tolls; cannot you make some discriminating distinction as to one or the other; the one set of tolls might be called refuge tolls, and the other passing tolls?—If you could persuade a captain or a shipowner that he was only paying for refuge, it might blind him to the form of a passing toll, which has got so strongly fixed upon his mind that I do not think you would ever shake it out.

2765. By passing tolls, you mean the toll that every ship of every port, coming from what part it may, merely passing within a certain distance of the coast in order to get to its destination, has to pay to the harbour?—Yes.

2766. You spoke of the large shipping from Staples Island up to Flamborough Head; might not there be a plan by which the owners of that shipping within that district would be inclined to pay so much per ton per annum, which would enable them to have the use of such a harbour of refuge at all times free?—I do not think that that would be generally approved of; I do not think, for instance, that if you were to select Hartlepool as a place for a refuge harbour, other ports would like it, and I do not think they would like to contribute anything whatever, except by compulsion, for the use of that harbour.

2767. Though their liability to loss would be considerably lessened by about 50,000*l.* a year?—For myself, and any interest that I may have in shipping, I should not object to it, but I do not hold out any prospect that the general shipping interest would approve of paying for a thing that they did not use.

2768. Supposing it was left optional in this way, that if they used the harbour they should pay certain rates; or, if they pleased, they might as it were compound by the year?—There would be no objection to that, because the shipowner would very soon estimate what was the advantage.

2769. The great object of those tolls would be so to limit the amount, that they should not exceed the amount of the mutual insurance saved?—Yes; I do not think that that would be an objectionable plan, either to allow the shipowner to pay for the refuge as he uses it, or to give him permission to compound for a certain payment a year, for as many times as he may choose to enter the harbour.

2770. Limiting it, of course, to ports within a certain range, from about Burlington up to Berwick?—Yes; or you may take the Frith of Forth. The great amount of shipping is certainly between Berwick and Flamborough Head.

2771. You know the coast well?—Yes; very well.

2772. Captain Washington, I think, made an observation in his evidence, that instead of going to the south of Hartlepool, he seemed to hint that there was a position to the north of Hartlepool Head, where a breakwater could be formed?—I do not remember Captain Washington saying anything of that sort; I think he said there was nothing to the north.

2773. You are not aware of there being any position of that sort?—No; it is a dead lee shore there.

2774. This head of Hartlepool is rock, is it not?—It is magnesian limestone rock.

2775. What they call the heugh on the map?—Yes.

2776. Is not it very easy to quarry the rock there?—Yes; but that is a great preservative to the bay.

2777. Might you not take it on the other side, so as to preserve the higher hill?—No; that would be a destruction to the head. The great preservative is the foreshore rocks.

2778. Take it above the level of high water?—Then there is not sufficient in that headland to pull down.

2779. What is the elevation of that heugh?—About 30 to 50 feet.

2780. Do you know any position near Sunderland where vessels are in the habit of anchoring; I think it is called the Smooth Deep?—There is Hendon Bay.

2781. A little to the south of Sunderland?—Yes, that is Hendon Bay.

2782. It is used as an anchorage, is it not?—It is occasionally used as an anchorage; but I do not know so much in respect to the shipping at Sunderland any Sunderland gentleman would be able to speak to.

2783. There is the White Stones also?—Yes.

2784. Are you aware that there are any facilities for forming a breakwater there to make it good for a harbour of refuge?—There is nothing more than a bare coast there; you may put breakwaters at any part of the coast, provided you

Mr. *R. W. Jackson.*

29 July 1857.

have a good foundation; but in the case of Hartlepool nature has done more than two-thirds of the work.

2785. Taking the position of Sunderland, it would be nearly as favourable for the passing shipping as Hartlepool?—Not so much so, because it is a very different line of coast. Hartlepool and Tees Bay is in the very depth of the bight, and that is where ships are actually driven into the bay; but further to the north the land trends in a very different way, and the course of the ships is very different. In a north-east gale they could not fetch there unless they were to the north.

2786. Have you heard that the shore is gradually getting shallower, and that the sand is accumulating there?—No, the sand is not accumulating on that shore.

2787. Between the position where, if the breakwater we have spoken of was placed upon the flat, there the sand is accumulating?—No; in Hartlepool Bay there is a certain sand which is shifting at various times of the year, according to the wind; but there is not, and has not been for the last eight years, any appreciable additional quantity.

2788. In fact, the coast is not getting shallower there?—Not within the last eight or nine years. It is very much deeper, according to the Admiralty's own soundings, between the south pier of the west harbour and that ledge of rocks called Long Scar; but in another part of the bay further out it is a little shoaler; but there is no appreciable difference in the whole sheltering area of that bay.

2789. Mr. *Macartney.*] You gave very minute information as to the number and extent of the shipping upon certain portions of that East Coast; can you state the number of ships and the amount of tonnage hailing from the different ports and creeks between Fern Island and Flamborough Head, including Berwick?—Berwick, 666 vessels, and 41,298 tons; Newcastle, 24,484 vessels and 3,725,934 tons.

2790. Mr. *Dodson.*] That is the tonnage cleared and entered?—Yes, with cargoes, not light vessels at all. Shields, 3,663 vessels, and tonnage, 505,594; Sunderland and Seaham, 18,138 vessels and 2,437,448 tons; the Port of Hartlepool, 10,406 vessels, and 1,497,081 tons; Stockton, 4,011 vessels, tonnage, 417,225; Whitby, 916 vessels, and 43,775 tons; Scarborough, 348 vessels, and 12,212 tons. I have taken now to the Humber; the Humber is the next port to Scarborough.

2791. Mr. *Macartney.*] Scarborough is to the northward of Flamborough Head?—Yes.

2792. A former witness who was pressed upon the same objectionable subject, that seems to be quite as much detested on the east coast as upon the west and south, that of passing tolls, in answering a question of the Chairman, stated that he did not conceive that a moderate district toll paid annually on vessels belonging to those ports would be objected to by the owners of vessels, provided they were sure they had a refuge harbour in such a position as Tees Bay; are you of opinion that such tolls could be obtained, without objection, from the great majority of the shipowners in that district?—I think it could not be obtained with anything like a majority of feeling in favour of a district toll. Many of those ships that hail from those ports given in the figures that I have detailed are foreign ships as well, and they are approaching the ports, and it might be objectionable to them; it might drive them to other ports where there was not that toll. It should, therefore, I think, either be a universal and a free harbour altogether, or for vessels to pay that use the harbour; I can scarcely bring my mind (and I have thought much upon the subject) to lay down a principle which should be unobjectionable as a district rate or toll.

2793. Did you ever calculate what amount the tonnage of that number of vessels would give at a halfpenny per ton as an annual impost, that they might take that safety harbour when and as they pleased?—No, it is very easily calculated; but in addition to those figures I have given you, which are all loaded ships in and out, you must include as light ships that have entered at least three-fourths more to the coal ports.

2794. You have not made that calculation?—I have not made that calculation.

2795. Perhaps, before you put in your return, you would add to it the registered tonnage of each vessel at an impost of, say, a halfpenny for a refuge toll?—Yes, I will do that.

2796. You state also that every vessel almost, particularly in the coal trade, ought of necessity, if there was such a harbour there, to avail herself of it three times in the year?—Yes; I believe that no old seaman will controvert that position.

2797. It

Mr. *R. W. Jackson.*

29 July 1857.

2797. It would be very interesting also, if in that return you would make out what you conceive to be a return from this harbour of the vessels availing themselves of it three times, and what they should contribute each time they entered?—I have made that calculation.

2798. That in contradistinction to the other would be very important, because it might lead this Committee or the Government to see their way to take the making of this harbour on themselves, being able to amalgamate the two principles in some way or other?—Yes.

2799. It is the universal opinion of the trade of that eastern coast, particularly what is called the coal district, that the country ought not to be left longer without a refuge harbour there?—I hope it will be realised.

2800. It has been the opinion expressed, not only by addresses and memorials, but universally along the coast, that it should be a Government measure, and adopted at once, independently of the exertion which is making by the enterprise of the different local ports?—Yes; I think that any measure for a harbour of refuge must be independent of the local trade. This port which I happen to represent here is a peculiar port; I do not believe that there is such another position in the United Kingdom as the Public Port Commission, having an extent of eight miles of coast, with the power of executing any works for the benefit of shipping, without reference to private trade, as we have in the Hartlepool district, because the Port Commission at Hartlepool extends two miles to the south of Hartlepool Bay, and six miles to the north of it; so that any work executed within that sea-coast distance would be liable to the toll, if the Port Commissioners executed a sufficient work.

2801. You stated, in the early part of your evidence, that the old harbour of Hartlepool had not increased in its revenue at all in the same proportion, for the time that it has been erected, as that of New Hartlepool?—Yes; Old Hartlepool was established in the year 1835; West Hartlepool was established in the year 1847; and from Old Hartlepool there is essentially no merchandise export to the Baltic or foreign ports; that is almost exclusively from West Hartlepool.

2802. And the trade of Old Hartlepool is almost universally coal?—Almost entirely.

2803. Then from such a trade there could not be any proportionate increase of revenue from it, compared with the merchandise, increasing as it is in West Hartlepool?—No. West Hartlepool is increasing both in its coal and its merchandise.

2804. The accommodation at Old Hartlepool is restricted very much as compared with West Hartlepool?—Yes, it is of a very different character altogether. Altogether, now, at West Hartlepool, there are about 145 acres of docks and harbours.

2805. Are the tolls the same in both harbours?—Yes.

2806. Are they managed by the same commissioners?—No; there are two separate companies, but they are on very good terms, and there is no contest of dues, or in any other way.

2807. Mr. *Ewart.*] In consequence of the great competition of vessels on that part of the coast, and the consequent low rates of freight, are not vessels there obliged to be sailed very cheaply, and to be therefore rather inefficiently manned?—I believe that they are not inefficiently manned.

2808. Is it not the general notion that they are inefficiently manned upon that coast?—No, I believe not. There has been a great improvement since the passing of the Merchant Shipping Act; and, in fact, the seamen themselves have taken care of that, for they make it a rule now that they will not go in vessels unless they are well manned, and have a certain number, according to the size of the ship.

2809. You are strongly in favour of tolls upon vessels entering the harbour?—Either in that way or leaving a ship to make its own composition by an annual payment.

2810. Do you not think that in consequence of competition generally in sailing, the masters of vessels would not feel disposed to take the benefit of such a refuge harbour if they were to pay a toll on entering it?—No; I believe that that is more theoretical than practical. I do not believe that upon the coast, between Flamborough Head and the Fern Islands, a single shipowner or captain would object to the captain going into that refuge harbour if placed at Hartlepool, or any other locality, in order to save his ship; because all the

Mr. *R. W. Jackson.*

29 July 1857.

shipowners on that coast know what the weather is almost in their own houses; and they therefore would never hesitate at all at the payment, besides a captain does not go singly into a harbour. There are other vessels generally sailing with him.

2811. Do you think that if there was a refuge harbour at Hartlepool, such as you have mentioned, and no charge was made on vessels entering it, the vessels sailing would be inclined to sail more frequently from both the south and the north, in consequence of being aware that in case of bad weather they had this refuge harbour to run to?—I have no doubt that it would increase the whole of the trade of that district, because when vessels knew that they have a good refuge harbour under their lee, they would leave their ports many a time when they now do not. I will take Burlington Bay and south of Flamborough Head, and Yarmouth Roads, many a vessel would leave those places if they knew that they had a harbour of refuge in the deepest part of the bight of that coast, when they do not now leave till fine weather. My opinion is that they would make more voyages a year, the ships would leave their ports more freely, and the general trade of the district would be encouraged by having a harbour of refuge for ships, when knowing that they can always get a harbour when a north or south-east gale comes on.

2812. Do you not think that vessels leaving those ports should contribute something to this harbour of refuge, when they have this harbour of refuge to run to in case of need, instead of merely paying when they go there?—That comes to the question of the feeling of the shipowners, for many would prefer paying, or running the risk of paying, a higher toll because they used the harbour, than to pay a smaller toll in the nature of a passing toll, which is so very difficult to get impressed upon their minds as being a judicious expenditure of money.

2813. Sir *Robert Ferguson.*] Would not that passing toll give a much greater certainty for a sum on which to rely with respect to the question of paying for the harbour?—That would depend on the amount. As a passing toll it would make a certainty, but I believe that the experience of many years, and the certainty of the gales that there have been out of the memory of man upon that coast, would be a sufficient justification for calculation that the ships must use it. The very circumstance of the wrecks shows that there will be wrecks again, and that they must use the harbour in some proportion.

2814. Would not the different number of wrecks in different years oblige the refuge toll to be placed considerably higher, in order to give the same sum with certainty in every year?—There is not a great difference between the annual loss of one year and another; not a very appreciable difference. No doubt a certain toll paid on the 1st of January every year by the ships, or upon the number of voyages, would make a certainty of toll; but I question myself whether it would make any material difference. At the same time, any judicious toll that would accomplish the object of the refuge harbour I should be very glad indeed, as interested on that coast, to consent to; for it is most essential to have a harbour of refuge by the payment of some toll which will induce the masters to use the harbour. Whichever plan can be adopted, that is the plan unquestionably that I should advocate, but my own private opinion is, that the shipowners will prefer to pay when they use it. At the same time, if the Government will adopt any other plan, and accomplish the same object, the shipowners will have no right to complain.

2815. Sir *Frederick Smith.*] Do you know anything of the east coast of Scotland?—Not intimately; I have sailed round it.

2816. Have you ever formed any opinion upon the necessity of a harbour of refuge at Wick?—I have never studied the subject. I have sailed off Wick; I should think it necessary to have some protection there.

2817. Have you vessels trading to the Baltic?—Yes.

2818. So far as they are concerned, would it not influence you?—My interest in the trade to the Baltic is chiefly steam.

2819. Are you aware that Captain Vetch proposed a different kind of breakwater for Hartlepool to that recommended by Mr. Rendel; that is to say, a breakwater parallel to the shore?—Yes. I did not understand how Captain Vetch intended that; he threw it out merely as a suggestion, and without stating the two points.

2820. You are not able to form an opinion upon the relative value of the two plans?

plans?—No; there could be no breakwater parallel to the shore there, because there you are in the head of the bay. Hartlepool Head is the head of the bay, and the next head is some 15 miles off; therefore, it would inclose, according to Captain Vetch's suggestion, some portion of that intermediate space.

2821. If one harbour only was to be formed, do you give a decided preference to Hartlepool?—Yes; not only from local feelings, but from my knowledge of the case; that is where nature has herself provided it.

2822. For national purposes?—Yes, for national purposes. It would be open for any of Her Majesty's cruisers to coal there; there is excellent steam coal on the Government lists at Hartlepool.

2823. Is it not the fact that the number of wrecks was greater in 1856 than in 1855?—In 1855 it was 1,141, and, in 1856, 1,153, for the United Kingdom.

2824. Mr. *Dodson.*] Could you give the Committee the total of the tonnage of those ports on the northern coast which you mentioned?—Yes.

2825. And the total of the tonnage entered and cleared for the whole of England in the corresponding year?—Yes, I can give it in one sum here.

2826. Will you state it?—The total number for England and Wales was 306,919 ships, with a tonnage of 40,799,495, being an average of not quite 133 tons; for Scotland 52,381 vessels, with a tonnage of 5,864,020 tons, being an average of nearly 112 tons; for Ireland 39,240 vessels, with a tonnage of 5,456,462, being an average of 139 tons; and the total of the United Kingdom, with the Isle of Man and the Channel Islands, is 410,075 vessels, with a tonnage of 53,029,595, being not quite 130 tons on the average.

2827. What is the aggregate tonnage of those six ports which you gave the Committee in detail before?—I have the Humber included, I should have to subtract that.

2828. Will you give in afterwards the aggregate tonnage of those six ports?—Yes.

2829. You told us that, between Flamborough Head and the Fern Islands, 125,000 *l.* worth of property was lost annually?—Yes.

2830. Have you endeavoured to form any estimate of what amount of that property would be saved by the construction of a harbour of refuge at Hartlepool?—I can only say that it is difficult to calculate what would be the loss there. There would be comparatively a small loss as compared with the 125,000 *l.* as at present; but I should say that 20,000 *l.* would be a large amount.

2831. You think that 105,000 *l.* might be saved?—Yes. I was a good deal impressed with the opinion expressed by Mr. Calver, that in the last gale in January, which was a terrific one, every life and vessel would have been saved by this refuge harbour at Hartlepool; if he states that, with his experience, I think I am warranted in stating that it is difficult to calculate the loss, provided there was such a refuge.

2832. That was an extraordinary storm?—Yes, it was an extraordinary storm, but we have very bad ones beside that.

2833. Since the introduction of the Mercantile Marine Act, and the gradual introduction of that better class of vessels that you speak of, has there been any sensible diminution of the wrecks on that part of the coast, leaving out this exceptional storm?—I do not think there has been any very perceptible difference, any more than what we see in the scale regulated all over the kingdom by the published Return of Wrecks by the Admiralty. There you see the difference, comparing one year with the other. The finer the vessel, without a harbour of refuge, the more chance of loss; the smaller vessels manage to run and creep in and bump, and get into the harbours, but the larger vessel does not; and my very decided opinion is this, that as the tonnage is increasing, though I believe the numbers in the United Kingdom are somewhat decreasing, there becomes a greater necessity for a harbour of refuge, in order to maintain those vessels from wrecks; and particularly when we come to look at the screw colliers that may navigate that coast, together with the large merchandise steamers; for they, when they are coming home from their outward voyages, or going out, want a harbour of refuge as well as the others, particularly when making their port.

2834. The larger the class of vessels employed, the greater the necessity for a deep-water harbour of refuge?—Yes; I should be very sorry to see those long steamers, 220 feet long, attempting the tidal harbours in a gale.

Mr. *R. W. Jackson.*

29 July 1857.

2835. Mr. *Macartney.*] What number of screw colliers have been wrecked upon that coast?—I should think several.

2836. Have any been lost?—Yes.

2837. More than one?—Yes, several. I had one went down and all hands were lost, and we never heard of it.

2838. Assuming that the Government were to take up this refuge harbour, would not the reduction to the underwriters at Lloyd's, and also to the mutual insurance shipowners, be very considerable, in case they had such a harbour upon that position of the coast?—There is no question whatever that if a harbour of refuge was formed there would be a very great reduction. My statement was, what was the best and most palatable mode of making the payment.

2839. And of course that reduction would form an element in any national undertaking, as to the means of calculation for the repayment of the public funds?—I quite feel that if the Government take up the subject, they are fully entitled to consider themselves what would be the most equitable and remunerating mode of payment.

2840. Lord *John Hay.*] Did I rightly understand you to say, that in Mr. Rendel's opinion that was a good form of harbour, because it had a small entrance, and would therefore keep out the sand?—No, the entrance is 1,200 feet wide; that is a large entrance; but the design that he had in making that south pier, was to prevent the sand falling into that bay from the south. I have found by the very closest examination for a long period of years, that that sand all comes from the south, and in the south-east gales is lashed by the waves right across the Tees' Bay, and falls of course into the recess, and is held by the head from passing to the north.

2841. The form of that leads the sand, as it were, into the harbour?—But then, at the very time when it is ebb tide from the south it is ebb tide out of that harbour, therefore the tide is not going in; the tide is passing, as the chart shows, to Newcastle and the Orkneys. But I suggested that if that entrance was at all altered, I should like to see it made to harmonise with the ebb tide in passing the harbour, and not so much at right angles. That is a question of detail at the last moment, but that is my own private opinion; and having had a good deal to do with the West Harbour, where we were buried in sand, in the centre of that harbour there is no more sand than there is in this room, and I believe that to be entirely in consequence of the adaptation of the piers. The alterations there made from time to time from observations as to the sand, were the inducement on the part of Mr. Rendel to adopt that plan, instead of an open one. At the same time, the cases are not entirely similar, because one is between high and low water mark, and the other is out at sea in deep water.

2842. You appear to have a high opinion of the discretion and judgment of the captains of vessels upon that coast; did you never hear in other parts of the coasts of England of vessels not taking advantage of the protection that they might have had by running into a harbour in consequence of thereby being liable to the dues?—I have had no instances of that myself; I can imagine that there are some shipowners that would be cross with a captain, but I think it is an exception to the general rule, and not the universal rule.

2843. As an instance, do you suppose that captains would always take pilots, unless they were obliged to do so in going into places which required them; is not their disposition rather to avoid the expense, even at a little risk?—No; because, when a man has been off from a port, he does not know what changes have taken place in that port during the voyage, and he is very glad to take a pilot to tell him whether the coast is clear when he goes in, although he may know very well how to take the harbour. A captain always likes to have a pilot; he likes to be relieved of the responsibility, when he comes near the shore, of taking the harbour.

2844. *Chairman.*] Supposing the Government were to assist you by guarantee or otherwise in raising this sum of money, do you think that they ought to be represented on the Board that decides upon these works?—Yes. The Board of Trade, at the present moment, appoint three Commissioners out of 14 at Hartlepool. The constitution of the Commission is this: three are appointed by the Old Harbour Company, three by the West Harbour Company, three by the Registered Shipowners of the Port, three by the Board of Trade, one by the Corporation of Old Hartlepool, and one by the Corporation of West Hartlepool; that is 14.

2845. Would

2845. Would not something more than that be required in case the Government were to assist you by its credit or otherwise?—There would not be the smallest objection. The revenue is public revenue, and is solely applicable to works for the benefit of shipping; and there is not a single shilling of this port revenue that can be laid out for private purposes. Mr. *R. W. Jackson.* 29 July 1857.

2846. In what way could that Government control be exerted most beneficially?—There would be no objection to the Government receiving the toll. The duties of the Commissioners are very trifling at the present moment; they have receivers who receive the toll, and they put it into the bank; they cannot do anything at all with it excepting in the execution of works.

2847. Do you think that the Government should have any veto upon the proceedings of the Board?—I think so, certainly.

2848. And that some officer should be present at their deliberations?—Certainly there is the greatest possible disposition to openness and candour in the proceedings; and I think it would be better that it should be so, if the Government were to assist by money, than to leave it to the local parties alone.

Captain *James Hosken*, R. N., called in; and Examined.

2849. *Chairman.*] WHAT is your profession?—I am a Captain in the Navy. Captain *J. Hosken*, R. N.

2850. Have you turned your attention to the subject of Harbours of Refuge?—To some extent, I have.

2851. In what part of the coast?—More particularly on the western coast, the Bristol Channel, and the western coast of England.

2852. Between what limits are you prepared to speak?—From Portsmouth to the Land's End, and up the Bristol Channel.

2853. Are you of opinion that within those limits a harbour of refuge is required?—I think we have enough natural harbours upon that coast; some of them might be improved probably.

2854. Do you think what is required might be done by the improvement of the existing harbours?—Yes, I think so.

2855. Which harbours would you improve?—I think Newhaven might be improved.

2856. Do you mean Newhaven near Brighton?—Yes.

2857. Are you speaking from local knowledge about Newhaven?—From general knowledge; I have no local knowledge of it.

2858. With reference to ports of which you have local knowledge, have you any suggestions to offer?—I think the access to Falmouth Harbour might be much improved by the rock at the entrance being removed.

2859. Will you describe the obstruction, and the nature of the works you would recommend?—There is a rock at the entrance of the harbour without difficulty that might be removed, and very much improve the harbour for the entry of sailing ships on dark nights especially.

2860. What mischief does that rock do?—It stands near the centre of the harbour.

2861. Is it visible?—At times.

2862. You think it has no beneficial effect upon the harbour at all?—I think not; it has not sufficient base to have any effect in breaking off the sea.

2863. Is there any other harbour where you think any improvement is required?—St. Ives' Bay might be improved in such a way as to make it a harbour of refuge.

2864. Mr. *Baring.*] Your attention was drawn to that bay by being in command of ships trading from the Bristol Channel?—Yes.

2865. Have you ever commanded sailing ships along there?—No, not in the Bristol Channel. I am quite sure the ships going up and down the Bristol Channel, when caught with a heavy north-west wind on the south shore, before Lundy Island, would be very glad to have a place to run for.

2866. Under what particular circumstances would St. Ives' Bay be of advantage as a harbour of refuge?—In north-west winds very often. Gales from

Captain *J. Hosken*, R. N.

29 July 1857.

the south-west suddenly shift, and blow from the north-west, and in such a case St. Ives' Bay would be of vast importance.

2867. Are there any ports on the coast of Ireland to which your attention has been directed?—No, not particularly.

2868. Mr. *Macartney.*] Have you been lately employed on the coast of Ireland, making survey of any harbours?—No.

2869. Mr. *Hassard.*] You have been in command of vessels in the Irish Channel?—Yes.

2870. The gale generally shifts from the south-west to the north-west?—Generally, almost invariably.

2871. Do you know Waterford Harbour?—I have been there.

2872. Under those circumstances, would not a vessel going to the westward, outward bound, be better situated if she took refuge in Waterford Harbour than Milford; it would be more weatherly?—No, I think not; in the first place Waterford Harbour is not near so good as Milford.

2873. Supposing Waterford Harbour available?—It is not equally available with Milford. I do not know that there would be much difference.

2874. Supposing the wind to shift to the west, would she not be dead to leeward in Milford?—She would be leeward of Waterford, certainly.

2875. With the wind to the west she would hardly fetch the Land's End?—No.

2876. But at Waterford she could?—Yes; the Land's End is eastward of Waterford.

2877. If going to the westward out of Waterford, she could lie on her course, but not out of Milford?—With the wind to the west.

2878. The wind, you say, generally shifts round from south-west to north-west?—Yes.

2879. She could start out of Waterford sooner than out of Milford?—Certainly, in a north-west wind she would be better placed.

2880. Mr. *A. Smith.*] You know the Bristol Channel?—Yes.

2881. Do you know the north coast of Cornwall well?—Yes, tolerably well.

2882. In navigating the Bristol Channel, have you been sailing much about it?—No, it has been in steamers only.

2883. You have not considered particularly what position it would be desirable to have a harbour of refuge in, as regards the navigation of the Bristol Channel for sailing vessels?—I should think St. Ives would be the best place decidedly; I see no other.

2884. If you go up the coast, which is the first port that you come to?—There is no harbour, except tidal harbours, till you get inside the Holmes at Bristol.

2885. Is there good anchorage at Lundy?—With easterly winds none at all; with westerly winds there is a small anchorage under Lundy, but not safe at all; ships very rarely use it indeed.

2886. For what winds is it that you would most want a harbour in the Bristol Channel?—When caught by heavy northerly winds well in with the coast, below Lundy Island.

2887. Therefore, in your opinion, St. Ives would be the position that would be most useful to all ships, to form a harbour of refuge at?—I think decidedly so.

2888. Better than farther up, about Trevose Head?—I do not know any place about Trevose Head where you could form a good harbour at all comparable to St. Ives.

2889. If you could form a harbour, would it be better there or not?—I do not think so.

2890. You do not know the coast very minutely?—No.

2891. Do you know a bay called Crontock Bay?—No.

2892. Mr. *Phillips.*] You spoke of the Irish Channel; the shipping going up and down there is chiefly bound to the port of Liverpool?—Yes.

2893. Suppose a ship is going out of Liverpool and beating down the Channel, and she meets with a south-westerly gale, she would have the harbour of refuge at Holyhead to go to?—Yes.

2894. Therefore, the chief point is for vessels coming in?—Yes.

2895. A ship

2895. A ship coming from the Atlantic for Liverpool, the first thing she makes is Cape Clear?—Yes.

2896. From there to Tascar?—Yes.

2897. Suppose she met a terrific north-west gale there, would she not run for Milford Haven?—Certainly.

2898. Could she run for Waterford?—No, she could not run for Waterford.

2899. Could she get there?—No.

2900. What is the use of an outlay there under those circumstances?—None at all.

2901. If outward bound she has Holyhead Harbour to go to, and it is her own fault if she went out in the gale?—

2902. Mr. *Ewart.*] You were the commander of the "Great Britain?"—Yes.

2903. You are more accustomed to steam than sails?—Yes, latterly.

2904. You know the coast very well all the way up from the south of Ireland to Liverpool?—Yes.

2905. If I recollect rightly, you very often used to take the Great Britain north about?—Very often.

2906. Do you think that course could often be adopted by sailing ships at Liverpool?—No, only steamers.

2907. You know Holyhead, of course?—Yes, very well

2908. The prevailing winds at Liverpool are south-west?—South-west and north-west.

2909. And the south-west gale generally veers round to the north-west?—Yes, generally.

2910. Do you consider the present harbour of refuge of Holyhead a good harbour, as a refuge harbour for the prevailing winds off that coast?—I think Holyhead is a good harbour in any wind.

2911. If a vessel with a south-west gale, outward bound, put into Holyhead, the wind veering round to the north-west, she would be embayed there?—Yes; she would have a difficulty in getting out, but at the present day that is scarcely an objection with the powerful steam tugs that are employed.

2912. Do you know the Isle of Man?—Yes.

2913. Do you know Douglas Bay?—I have been there.

2914. Do you think that would make a good refuge harbour?—My recollection of it when in a sailing ship is that it would not, but I would not undertake to give an opinion upon that.

2915. Mr. *Kendall.*] You spoke of Falmouth Harbour; have you any idea of the expenditure that would be required to improve that?—No.

2916. Do you know anything about a pool called St. Just Pool, near Falmouth?—Yes.

2917. Would that be a nice place of refuge?—Very good, indeed, I think; I do not see any objection to St. Just Pool as a place of refuge.

2918. Would it be a better place than at Falmouth, if you got an entrance to Falmouth?—There is more difficulty in getting into it, but when there a safer place cannot possibly be.

2919. Is there any very great difficulty in getting into it?—No, not great difficulty; there is some difficulty.

2920. What is the difficulty?—The channel narrows as you get inside the harbour.

2921. This being so very good a place of refuge, would it cost much to get into St. Just Pool to remedy this defect, to widen the entrance?—I do not know how far it might be improved on St. Just side.

2922. Do you know the breakwater from Penleigh Point off Penzance?—No.

2923. Do you fancy that a harbour of refuge is almost essential in the neighbourhood of St. Ives?—I think it would be a very good thing.

2924. Have you seen Captain Vetch's Report?—No, I have not.

2925. Do you know anything of the Cowan Head?—No.

2926. Do you know anything of Padstow?—Only by seeing it in passing.

2927. You have never seen any Report upon Padstow Harbour?—No.

2928. Mr. *Dodson.*] Do you know much of Falmouth Harbour?—Yes, I have frequently been there.

Captain *J. Hosken*, R. N.

29 July 1857.

2929. What is the depth of water there?—It varies.

2930. What is the minimum depth?—There are two harbours, an inner harbour and an outer harbour.

2931. I speak of both?—I believe the least depth of water in the inner harbour is about 14 or 15 feet at the low water spring-tides.

2932. And in the outer harbour how much?—Five or six fathoms in the ordinary anchorage.

2933. Do you know the respective areas of those two harbours?—I do not.

2934. What do you think is most essential to be done for the improvement of Falmouth Harbour to make it a harbour of refuge?—The only thing that I can see to improve Falmouth Harbour is to remove the rock in the centre of the harbour to render it quite easy of access for sailing ships on dark nights.

2935. Have you studied Penzance Bay at all?—Not at all.

2936. Do you know anything of the Bristol Channel?—Yes, something of it.

2937. Is there any point at the north shore of the Bristol Channel where you think it desirable to form a harbour of refuge?—No, I do not know of any. With easterly winds, Penarth Roads is a very safe anchorage in the Bristol Channel, without anything being done to it; I do not know of any place on the north side of the Bristol Channel where you could make a harbour of refuge.

2938. Do you know anything of the ports in Western Ireland?—No, Lough Swilly is the only one I know.

2939. Do you know Carlingford?—Only in passing.

2940. Mr. *Baring*.] Are you acquainted with Captain Sulivan?—Yes.

2941. Has he any knowledge of Falmouth Harbour?—I should think so; indeed there is no doubt about it.

2942. As a surveying officer, would you not take his opinion with reference to the rock?—Yes, certainly.

2943. As a valuable opinion with respect to any course that should be pursued with regard to this rock?—Decidedly.

Mr. *Richard Hoskyn*, called in; and Examined.

Mr. *R. Hoskyn*.

2944. Mr. *Baring*.] WHAT rank do you hold in the Royal Navy?—I am a Master.

2945. Are you in the surveying service?—I am.

2946. What survey have you been recently employed in?—On the east coast of Ireland.

2947. How long have you been engaged in that survey?—I have been 12 years on the east coast of Ireland.

2948. What extent of coast can you speak to from your personal knowledge and observation?—From the coast of Waterford as far as Innishowen Head.

2949. Have you surveyed the whole of that coast?—I have been employed as an assistant, and as in charge of the survey; as an assistant for nine years, and since that I have been in charge of the survey.

2950. Have you made any surveys with special reference to the improvement of the harbours upon that coast?—I think our surveys are used for that purpose, but I do not know that they were made with special reference to that.

2951. Will you begin with the south, and give the Committee your opinion upon the different harbours. Begin with Waterford Harbour; have you any observations to make with respect to the difficulties at the entrance?—The only difficulty that I am aware of there is the bar; there is 12 or 13 feet of water at low tide upon the bar. I only speak from memory.

2952. Have you ever considered the possibility of removing the bar, or improving the entrance?—Yes; it has been often discussed.

2953. Do you think it could be done with facility?—Yes, I think it could; it appears to be gravel on the surface, and it has been bored, and it appears to be turf below.

2954. Would the removal of that bar very much increase the utility of Waterford as a harbour of refuge?—Very much; it is a very fine harbour.

2955. As it is, is it available as a harbour of refuge?—It is to vessels of a certain draught of water, but not of a large draught.

2956. What

2956. What draught can go in?—Vessels of 10 and 11 feet may go in a little after low water with safety.

2957. What additional draught of water would be obtained by removing the bar?—It should be lowered to the depth of 18 feet, I think.

2958. What would that cost?—I have not made any calculation upon that subject.

2959. The next point is Wexford Harbour?—Yes.

2960. There are similar circumstances at Wexford to Waterford?—Wexford has a bad bar; much worse than Waterford.

2961. Could that bar be removed with facility?—I have no doubt it could be removed.

2962. Would the removal of that bar give the same advantages as the removal of the bar at Waterford?—No. Wexford is not nearly equal to Waterford in point of capacity.

2963. Supposing a work to be proposed for either Wexford or Waterford Harbour, which would be of the most utility for the general purposes of trade?—Waterford.

2964. For what reasons?—Waterford is more easy of approach; there are no outlying shoals at Waterford, and there are many at Wexford.

2965. With respect to the position of the two harbours, which would be more valuable for commerce?—Probably Waterford would have the advantage there also.

2966. For what reasons?—It is more western, and certainly it is more easy of access. Wexford could not be approached, I should suppose, by vessels of a large class at all.

2967. Even supposing improvements to be made?—I should not suppose vessels of a large class would ever dream of going near Wexford, if it were made as good as it is possible to make it; there is very little water over the outlying banks with which it is covered.

2968. Is there any point to the north till you come to Carlingford, where you think anything might be done?—There is nothing till we come to Carlingford that is worthy of being improved or of having much said about it.

2969. Have you made a special survey of Carlingford?—I have been so employed this season.

2970. Have you not ascertained some new channel of entrance to Carlingford?—Yes, I have a tracing of it here, that I prepared to take down to the Committee sitting in the House of Lords (*producing the same*).

2971. This chart shows that you have discovered a channel giving 18 feet at low water, whereas the existing channel gives only 8 feet at low water?—Yes.

2972. But the channel is very circuitous?—Yes.

2973. And would be probably difficult for sailing vessels?—Yes; but for steamers it is not so difficult; if it were buoyed it would be of great service to steam-vessels, and to sailing vessels with a fair wind.

2974. Would it be easy to improve the entrance to Carlingford Lough, so as to allow sailing vessels to enter with facility?—I think that it would be.

2975. By dredging?—Yes.

2976. By removing a portion of the bar?—Yes.

2977. What would be the cost of such an improvement?—I think it could be done for 30,000*l.*; that a channel 18 feet in depth could be dredged under a cost of 30,000*l.*

2978. It would be a straight channel?—It would be a straight channel.

2979. Making it perfectly easy for sailing ships to enter?—Making it quite easy for sailing ships to enter.

2980. What would be the advantage of improving Carlingford for sailing ships?—It would make it a harbour of refuge upon that coast; there is no harbour that large ships can take upon that coast at all at present.

2981. In what necessity would ships require a harbour of refuge there?—Ships caught in the channel in a south-east gale.

2982. The ships then would be north of Kingstown, between Kingstown and Carlingford?—Yes.

2983. At present, supposing ships are caught between Kingstown and Carlingford, where would they go?—They have no place to go to.

2984. Till when?—Till they get to Belfast.

Mr. *R. Hoskyn.*

29 July 1857.

8985. Supposing a ship was between Carlingford and Ardglass, she might not be able to make Belfast at all, might she?—She could always make Belfast until you get to leeward of it.

2986. What is the advantage then of having a harbour of refuge at Carlingford?—Ships are often embayed in that deep bay.

2987. If they were embayed they could not make Belfast?—No.

2988. Going further to the north, what is the next point you have any observations to make upon in respect to the harbours upon this coast?—There is a very good bay upon the coast of Antrim, Red Bay; that is already almost a harbour of refuge, with a moderate depth of water, extending over a large surface.

2989. Does it form a natural harbour of refuge?—It requires a pier to make it a perfect harbour of refuge; it is a first-rate roadstead, and ships going through the North Channel, and meeting with north-west gales, when not able to get through the Channel, go down there and find shelter; it is exposed to the east and north-east, but ships find shelter with all southerly winds and with the wind round to the south-south-east, and there is very good holding ground in it.

2990. Do you conceive that there is any necessity for making a harbour of refuge there for any purposes?—It would be very useful to the general trade of the country; to the ships frequenting the North Channel.

2991. Is not it very close to Belfast?—It is a good way from Belfast; a ship would not like to bear up to Belfast if she could help it.

2992. What traffic is there now of sailing ships by the North Channel?—I cannot state that; a good many of the Liverpool and Glasgow ships go that way now, but I do not know the number.

2993. Is there any port till you get to Innishowen Head?—There is very good shelter under the Skerries upon the coast of Antrim.

2994. Is there a shelter there at present?—Yes, it is sheltered by the rocks.

2995. In all winds?—No, not in all winds; it is open to the eastward; but the easterly gales do not create much, or any sea there.

2996. With a view to considering the traffic in that north passage, what are the most dangerous gales?—On passing through the North Channel the north-west gales are the worst.

2997. And the Skerries give shelter from those gales?—Yes, but the shelter at present is very slight and very inefficient; a very heavy sea runs there now, and it would be very much improved by the addition of a pier.

2998. What would be the cost?—I do not know; I have not considered it with respect to the cost at all.

2999. Is there any other place on the coast?—I am not acquainted with any other. Lough Foyle is a very fine natural harbour.

3000. Is the entrance to Lough Foyle easy?—It is.

3001. So that, at present, along that passage there is Belfast and Red Bay?—Yes; Red Bay is a very first-rate roadstead.

3002. There is the Skerries, affording shelter in a north-westerly gale?—Yes, partial shelter.

3003. And Lough Foyle, which is a good refuge?—Yes.

3004. Can you state the number of wrecks that have occurred upon that coast?—I cannot; there are a good many.

3005. Do you suppose that they have been occasioned in any degree by the want of a harbour of refuge?—I have no doubt that some of them would have been avoided if there had been a harbour of refuge, but I do not know how the wrecks occurred, and therefore I cannot speak with certainty.

3006. You cannot speak to it from your own knowledge?—No.

3007. Mr. *Ewart.*] Do you consider that many large ships, coming in and out of Liverpool, go north about?—Yes.

3008. Do you mean sailing vessels?—Yes, sailing vessels. When I was surveying upon that coast, we observed a great many passing through.

3009. Do you mean many compared with the trade of Liverpool?—I mean many in comparison with what passed that way a few years ago. It would be a very difficult thing to get any return upon the subject.

3010. Do you propose to remove the whole of Carlingford Bar?—No.

3011. You

3011. You mean merely to make a passage there?—Yes; of between 700 and 800 yards in width.

3012. Would you have any apprehensions at all of this bar silting up again after it was once dredged?—I should think that it would not be likely to silt up; there is a very rapid tide there.

3013. Do you know the Mersey?—I know it generally.

3014. Do you know that there is a bar there?—Yes.

3015. Do you know that that bar was raked?—Yes.

3016. Are you aware what was the consequence of that raking?—Yes; I believe that which was raked away returned, but the bar at Carlingford and the bar at Liverpool are very different. The bar at Carlingford is covered with clay; the bar in the Mersey is shifting sand.

3017. Mr. *Macartney.*] You mentioned the Skerries as a place which was spoken of as a fit and proper place for a refuge harbour, provided there were a proper outlay upon it?—Yes.

3018. You mentioned that it was open to the eastward?—Yes.

3019. Is not the headland of Bengore a perfect shelter from any disturbance of the water, with the wind from the north-east?—No; not from the north-east.

3020. From the east?—Yes; it is a considerable distance from the Skerries; five miles, I think.

3021. You mentioned Red Bay as an admirable roadstead for vessels going through the North Channel. Suppose that they fell in with an easterly or a north-easterly wind, would not Larne Lough be a much more preferable roadstead?—It is a very fine natural harbour, but it is very small; no ships of large draught could enter there.

3022. What is the depth of water at the entrance of the harbour?—Sixteen or seventeen feet.

3023. What is the rise at springs?—About nine feet.

3024. Is the water deep enough in Red Bay to take a large class of vessel?—Yes.

3025. This new channel at Carlingford, if it were buoyed, would be very advantageous, particularly for steam craft?—It would.

3026. But it would not be available generally for sailing vessels, you think?—No, it would not.

3027. Have you made any report to the Admiralty as to what description of beacon you propose placing there?—No, I have not.

3028. Has it been proposed to place additional lights there?—That was suggested to be done.

3029. Assuming that the bar was removed for the purpose of making Carlingford Lough a harbour of refuge, would it not be a very great disadvantage to foreign vessels, and other vessels going by chart, to find new lights put there?—It would not be necessary to put lights for the deep channel which is now discovered, if it is contemplated to remove the bar.

3030. At present there are but two lights?—Yes.

3031. What are they called?—Hawl Bowling Light and Greenore Light.

3032. If the bar were removed, the vessels would sail in the direct line of the two lights?—Yes.

3033. And once inside, there is anchorage for any amount of vessels?—Yes.

3034. What is the nature of the bottom?—I think it is coarse gravel and sand in that part that we speak of as a harbour of refuge; further up the lough it is mud.

3035. Is it good holding ground?—I have not had an opportunity of trying it; I should like to make a remark in connexion with Carlingford. Speaking of that outer part as a harbour of refuge, the people there are doing all in their power to destroy its usefulness by removing the natural breakwater of limestone.

3036. I believe that the engineer of the Newry navigation has been instructed to call the attention of the Admiralty to that very point?—

3037. Will you point out upon this map where this natural breakwater is?—(*The Witness pointed it out on the map.*)

3038. In referring to Waterford and Wexford, you stated that if the bar at Waterford were removed to the extent of 18 feet deep, in addition to the present 14 feet at low water spring, it would make an admirable safety harbour; what

Mr. *R. Hoskyn.*

29 July 1857.

anchorage ground would a large vessel then have the power of making for?—I am not able to state that.

3039. Would it be more space than is enclosed in Kingstown Harbour?—Yes, a great deal more than that.

3040. Kingstown Harbour consists of 100 acres?—I am sure that there are more than 1,000 acres at Waterford; from the Passage up to the junction of the two rivers ships of any class may anchor throughout the whole distance.

3041. There is no outside bank on the bar lying seaward at the mouth of Waterford similar to that at Wexford?—No.

3042. Consequently, a vessel coming from Liverpool gives the sand a much greater offing at Wexford than at Waterford. She may go much closer to Waterford without having a chance of being injured, knowing that she would have this port under her lee in case of a change of wind, than at Wexford?—Yes. I may mention, that to the eastward of Waterford there are dangers at the Connibeg Rock.

3043. But those rocks are lighted?—Yes, they are.

3044. A vessel coming in the channel north or south never thinks of taking the inside of the banks off Wexford?—I think not.

3045. She may be brought in there; and if the harbour were improved, to a certain extent, she might get in and save herself?—Yes.

3046. But it could never be brought into competition with either Waterford or Milford as a harbour of refuge?—No, not for general purposes.

3047. If the improvement which is suggested by Captain Vetch in Wexford Harbour were adopted, would it not be of very great importance to the local trade of Wexford, and those places upon the river above?—Yes; it is essential that the port should be improved for the local traffic.

3048. The local trade of Wexford is very considerable, is not it?—Very considerable.

3049. Mr. *A. Smith.*] Are you well acquainted with the shore below Wexford, at the headland of which Greenore Point is one, and Carnsore Point the other?—Yes, I am.

3050. Does the shipping that passes up there go outside of Taskar generally?—Always.

3051. To the eastward?—Yes.

3052. There is no point upon that coast where anything of a harbour of refuge could be formed, either at Carnsore or Greenore, so as to prevent the necessity of going among the sand banks at Wexford?—No; I should not think that one could be formed there to very great advantage; the coast is covered with rocks. To the south of the Tuskar there are reefs.

3053. There are the Barrells, and the Black Rock?—Yes, and extending from the Tuskar Rock to the southward, there are reefs along the shore; there are reefs called the Baileys.

3054. Are those dangerous?—Yes.

3055. You are not acquainted with the coast of Cornwall, are you?—No, I am not.

3056. Mr. *Hassard.*] You said that by the improvement of Carlingford bar it could be made easily accessible to sailing vessels?—Yes.

3057. Would it not be very useful as a harbour of refuge to outward bound vessels from Liverpool, when caught in a southerly wind?—Yes.

3058. They could always run for it?—Yes.

3059. Do you recollect the wreck of the "Tayleur?"—Yes.

3060. Might that vessel have run for it?—If they had been in a fit state to run for any one place, but I do not remember the wreck of any large ship in the Channel that any harbour of refuge would have saved; they have been lost through carelessness.

3061. You say that there are a number of outlying banks, besides that, could you, even by any process of improvement, have much water on the bar at Wexford?—Many things have been suggested, but it is one of those difficult questions which experienced engineers only can decide upon.

3062. The rise and fall of the tide is small?—Yes.

3063. And the present depth of water is small?—Yes; and the sand returns very frequently in those places when it has been removed.

3064. You would, therefore, have to excavate a great depth to get a sufficient depth

depth of water for a vessel of any burthen to get in at low water?—Yes; I suppose they would have to go to a depth of 9 or 10 feet at Wexford.

3065. I think you said that the rocks and outlying banks along the shore cease before you come to Waterford?—Yes, they do.

3066. The entrance to Waterford is quite clear?—Quite clear.

3067. Is the bar of Waterford situated at the mouth of the harbour?—It is considerably within what may be called the entrance of the harbour.

3068. Is it not some four miles up the mouth?—It is, I daresay, three or four miles within.

3069. It does not bear the same relation to Waterford Harbour that the bar of Wexford does. Is not the bar of Wexford outside the heads completely?—Yes.

3070. But the bar of Waterford is well inside?—Yes.

3071. And there is good anchorage below the bar, with the wind to the westward?—Yes, with an off-shore wind.

3072. You were asked with regard to the area of the anchorage above the bar, and you stated, I think, that it extended up from Passage to Cheek Point?—Yes.

3073. Is that a distance of one or two miles?—Yes.

3074. And it is good anchorage all that distance?—Yes.

3075. Landlocked?—Yes, quite landlocked.

3076. When making Waterford Harbour, is it easy to make?—It is.

3077. Is the land high?—It is of a moderate height to the westward.

3078. It is well defined?—Very well defined; the Hook is well defined by the lighthouse. Saltes can be made with safety always.

3079. Would it be an advantage to a vessel to the west of Waterford Harbour to be able to put in with the wind south-south-east?—Yes.

3080. At present, with the wind to the south-south-east, not at all in-shore, where would she have to run for shelter; would she have to go back to Holyhead?—Unless she could make Milford; there is no other port. I do not know whether she could fetch Milford or not.

3081. Have you ever known of any vessels having to run back to Holyhead again?—No, I have not.

3082. Did you ever make any estimate of what the expense would be of cutting a channel through this bar?—No, I have not.

3083. You were some time surveying off Waterford Harbour?—Yes, I was.

3084. During that time did you make any observations as to whether any change took place on that bar; whether it increased or not?—I do not think it did during that time. There was no change during the time that I was acquainted with it.

3085. That was over how long a period?—Six or eight years.

3086. You do not know, of your own knowledge, what the substratum is upon which the shingle rests?—No, I do not.

3087. Sir *R. Ferguson.*] With respect to Waterford and Wexford Harbours, is any person employed by the Admiralty as surveyor in that district?—I am not aware that any one is now.

3088. Are you acquainted with Mr. Farrell, the civil engineer?—I am.

3089. Does not he hold some employment under the Admiralty there as surveyor?—I am not aware that he does.

3090. Have you reported upon Carlingford Harbour?—No, I have not.

3091. Do you know what the nature of the bar is; is it sand or rock?—From my own knowledge I know that the surface of it is covered with stones and coarse gravel; but I have not bored it.

3092. Do you consider that a harbour of refuge is necessary upon that coast between Dublin and St. John's Point?—Yes, I think it would be most useful there.

3093. Are there not a great number of wrecks of vessels there now?—Yes, there are a good many.

3094. Do you conceive that any harbour shows the same advantages in that way as Carlingford?—No, there is no other harbour on that coast that offers the advantages that Carlingford does.

3095. With respect to the harbour that you mentioned in the Skerries, near

Mr. R. Hoskyn.

29 July 1857.

Port Rush, would the filling up of the small channels between the Skerries be accompanied with any great expense?—I should think it would; but I have not made any estimate of it.

3096. Sir *F. Smith.*] How long have you been upon that coast?—I was there two years.

3097. Are you there still?—No.

3098. What was the nature of your duties when you were there?—Surveying the coast.

3099. The harbours, and ports, and rivers?—Yes.

3100. How many did you report about?—I did not report upon any, with reference to their being made harbours of refuge.

3101. But with reference to their convenient access, and their shelter, and their present state?—Yes.

3102. What was the precise nature of your report?—We accompanied our surveys with sailing directions, but we made no special report about the capability of the harbour, unless called upon to do so particularly, and I was not called upon in this case.

3103. Your duties were to put in the headlands accurately, and take the soundings along the coast?—Yes.

3104. What is the depth of water at Wexford at present?—I think, on the bar, about seven or eight feet at low water.

3105. And what is the rise of tide?—About five feet.

3106. And what is it at Waterford?—Thirteen or 14 feet.

3107. Mr. *Baring.*] Are you aware whether the large sailing ships sailing from Liverpool now make use of steam tugs to tow them down St. George's Channel?—I never saw one so towed; I have seen a great number passing up and down, but I never saw one tugged.

3108. Mr. *Ewart.*] Are you in the habit of seeing those vessels much?—Not so much this year; I am speaking of two or three years ago.

Mr. *John Ramsay*, called in; and Examined.

Mr. J. Ramsay.

3109. Mr. *Macartney.*] YOU are Engineer to the Newry Navigation?—I am.

3110. Which consists of a portion of the sea and also of the canal?—It comes to Warrenpoint; that is at the extreme entrance of Carlingford Lough, and goes in to Lough Neigh.

3111. How long have you been engineer to that navigation?—Twenty-two years.

3112. You were called upon in the year 1834 or 1835 to survey and report upon a proposed improvement of the bar at Carlingford?—I was.

3113. By the Navigation Company?—Yes.

3114. You then prepared a map and plan, of which this, which I hold in my hand, is a copy?—Yes, it is.

3115. You have a printed Report which you made to the trustees in the year 1835?—Yes.

3116. I think, from time to time, since 1835 up to 1853, this subject had been mooted by the trade of Newry, and they endeavoured to induce the Government to take it up on a national ground, as being a fit and proper place to make a harbour of refuge between Belfast Lough and Kingstown?—It has.

3117. But particularly in the year 1853: the subject was brought under the notice of the Admiralty at that time, and taken up rather strongly by the Admiralty, with a view of considering the matter altogether?—It was.

3118. Then you made a Report, which has been printed, in which you state that to remove the bar at Carlingford might be effected for about 23,046*l.*?—Yes.

3119. Did you make a minute examination in that year, or some time before, of what the bar at Carlingford consists of?—At the time you speak of, in the year 1835, it had been reported to the Navigation Company as being a reef of rocks running from Cranfield Point to the lighthouse; and as they found that it would be a matter of great importance, they requested me to go down and examine it.

I did

I did so. I went down, prepared with boring-irons, and made a minute examination of it. I bored through the bar 18 to 20 feet below low-water; and that report details all those borings in the examination which I made.

3120. Will you deliver in that Report?—(*The same was delivered in.*) *Vide* Appendix.

3121. In place of being found to be rock, what was the material found to be?—The top part was loose boulder-stones; a little lower down it was loose gravel and sand, and subsequently a fine clay, a description of pipe-clay.

3122. Do you know the neighbourhood of that bar both inside and outside?—Yes.

3123. Are you aware whether there are any considerable sandbanks there?—I never heard of one.

3124. Is there any sandbank in the inside of the lough?—None whatever.

3125. And you know of none outside?—None whatever.

3126. If this bar consists of clay and boulder-stone and finer clay, if it is once removed, is there any possibility of its silting up again?—No, there is no possibility of its silting up again; the tide runs upon spring-tides 5½ miles an hour, and at neap-tides three to four miles an hour in currents sufficiently strong to prevent any silting up. I propose to remove the boulder-stones by a diving-bell, subsequently I propose to dredge.

3127. Where would you deposit the material which would be taken out?—I would take it out to sea and discharge it in deep water by means of hopper barges.

3128. Is there any place on the sides where it might be placed?—It might be placed on the south bar to form a sort of breakwater there.

3129. What width do you propose to make the cut or channel?—About 600 feet.

3130. And what depth?—Twenty feet.

3131. And as far as you have made your calculations, with improved machinery, a proper steam-tug and a steam dredge, you consider it could be removed at an expense not exceeding 25,000 *l.*?—I do.

3132. You have a steam dredge of a small class in the lough now, for the purpose of deepening the mouth of the river where the canal enters?—Yes, for the purpose of improving the river navigation from the sea upwards.

3133. Have you found that effective?—Yes.

3134. And no silting up again has taken place?—No.

3135. You have been able to hold all the depth that you have dredged?—We have never lost an inch by silting up.

3136. Would there be any alteration in the mode of sailing a vessel there if this channel were opened in this way?—I should say not.

3137. What is the present direction?—There is the bar or Haulbowling Light and the Greenore Light; vessels sailing in bring those lights in one, and that brings them perfectly clear into the harbour, and right up, also, into that inner harbour.

3138. The bar light is on the south side of the river?—On the north end of the south bar.

3139. Touching the water?—Just so; it is a very fine lighthouse, being similar to Eddystone Lighthouse.

3140. What is the depth of water at low water, at springs?—About nine feet.

3141. And you propose to deepen it, so as to give 20 feet at low water?—Yes.

3142. That would be deepening it 11 feet?—Yes, 11.

3143. Would that be sufficient for any vessel being dismasted in the channel, say a frigate, to get over into the lough?—I should say so.

3144. You have tinted this map in three different ways; you have shown the river after the bar is removed, inside and outside, of a deep blue colour?—Yes.

3145. What do you propose to show by that?—That shows the deep water at three fathoms; all inside of the blue represents sounding details at three fathoms and upwards, and outside the same; it is brought up so that it narrows the channel or bar at the space there shown by the blue line.

3146. What is the nature of the bottom there inside?—It is sandy and gravelly, and partly mud.

Mr. *J. Ramsay.*

29 July 1857.

3147. Do you consider it good holding ground?—I have never heard any complaint.

3148. Have you seen vessels bring-to there after getting over the bar?—Yes, I have seen many vessels hold there, and I never heard a complaint of one losing ground or drifting.

3149. What is the extent, in acres, of the part tinted blue?—Three hundred acres.

3150. That is three times as large as Kingstown?—Kingstown has 100 acres, under the same circumstances.

3151. From Greenore Light for about 3 ½ miles you tint the channel green?—Yes.

3152. What is the depth of water there?—The lowest depth is three fathoms.

3153. What is the extent of ground coloured green?—Seven hundred acres.

3154. And, independently of that, up towards Warren Point there is a very large extent of anchorage ground, where a vessel could come to at once?—An immense extent.

3155. What is there after you get past Greenore Point?—Mud.

3156. What length of time would it take to finish this work?—About three years.

3157. Have you gone through this new channel, which has been lately discovered by Mr. Hoskyn?—Yes, on Tuesday last I sailed through it in a steamer at low water.

3158. From the nature of that channel, although it is deep, having 18 feet at low water, it is not of that description that it could ever be made available for vessels in stress of weather attempting to make Carlingford as a refuge harbour?—I should say not.

3159. At present it is valuable for steamers particularly?—It would be so, and it is. The yellow tint represents the new channel, and you may see that it is very crooked.

3160. Are you able to inform the Committee as to the extent of any losses of large ships between St. John's Point and the Skerries Point to the southward?—I have a statement here which was made out by Captain Watson, who was Lloyd's agent from the year 1832 to the year 1852. This is merely the Customs' district; that embraces scarcely 20 miles, and it is detailed here, giving the value of the vessels. The number appears to be 15 totally wrecked, and several of the crews also were lost, and the cargoes were valued at 59,000 *l.*; 29 vessels partially wrecked, and had to discharge their cargoes and be repaired; they are valued at 79,500 *l.*

3161. Those wrecks were in the immediate vicinity of Carlingford Lough?—From Cooley Point to St. John's.

3162. That is within the Bay of Carlingford?—It is.

3163. There is the Bay of Drogheda and Dundalk, the traders of which, if there was a refuge harbour at Carlingford, might invariably avail themselves if caught in a gale of wind off Carlingford, and there lie until it was time to go to their port?—I should say so. St. John's Point runs very much out to the eastward; it encircles Dundrum Bay, and vessels coming up the Channel are frequently embayed in Dundrum Bay, and are wrecked there; whereas, if they had facilities for entering Carlingford, they would run for Carlingford and be saved.

3164. It has been proposed to make a safety harbour at Ardglass?—So I have heard.

3165. Have you ever examined Ardglass, with a view to ascertain whether it would be practicable to make a harbour of refuge there?—I have seen it, but I do not know whether it would be practicable.

3166. You have heard that Mr. Rendel made a Report upon it?—Yes.

3167. Do you know the amount that he said would be necessary to make a refuge harbour there?—I believe 300,000 *l.*

3168. You are of opinion that, for the sum of 25,000 *l.*, Carlingford Lough could be made to the fullest extent a most valuable harbour of refuge for the trade of the Channel?—I am.

3169. It has been mentioned by Mr. Hoskyn, that the people in the county of Louth

Louth are in the habit of removing, and thereby destroying the natural breakwater on the westward of the Carlingford River?—Yes, that portion which would form the tidal harbour from Ballagan Point to the lighthouse; I have known that for 20 years they have been annually removing a large amount, indeed not only from the county of Louth side, but from the county of Down side.

3170. It is between high and low-water mark?—Yes.

3171. No proprietor has any claim therefore to that material?—I presume not.

3172. Are you of opinion that it is incumbent on the authorities at the Admiralty to prohibit the removal of the material, it being very detrimental to the harbour of Carlingford?—I should say so decidedly, and I think that it would have been done, but it is nobody's business.

3173. There is a very large trade passing through Newry inland to the north-west, by the port of Newry?—There is a very large trade.

3174. If there was a facility for larger vessels going in at all times, do you consider that the prosperity of the country would be very much increased, if in addition to making it a harbour of refuge, it were made available for all classes of large vessels?—It certainly would be.

3175. There are railways from the north to the south, and there is one now passing through Parliament to the westward from Warrenpoint, where the Newry navigation commences its rise from the sea?—Yes; to one point it is already constructed. We have lines of railway from Newry to Belfast and Armagh. The one before Parliament at present is a direct line from Newry to Armagh. There is a roundabout railway communication from Newry to Armagh at present existing, and the railway now before Parliament proposes to join the two towns by a direct line. The consequence would be that there would be an uninterrupted railway communication from Newry to Belfast, and also to Monaghan and Enniskillen, and the counties of Fermanagh, Tyrone, and to the westward.

3176. And there is also a communication with Dublin?—Yes.

3177. Mr. *Baring*.] You read a statement respecting the wrecks in the district in the neighbourhood of Carlingford?—Yes; it is a list which was prepared by Captain Leonard Watson, Lloyd's agent at Carlingford, from 1832 to 1852, and it is confined to Cooley Point to St. John's.

3178. How many vessels were lost?—Fifteen; their cargoes being valued at 59,000*l*.

3179. How many vessels have been obliged to discharge cargo?—Twenty-nine; the value being 79,500*l*.

3180. So that, taking the two together, that will be a little more than two per annum?—Yes.

3181. Do you think that, in a national point of view, it would be fair, for losses of that kind, to expend the public money in making a harbour of refuge at Carlingford?—I do think so indeed, even if the sum asked for were much larger; but, taking into consideration the very small sum and the advantages that would accrue, I think that it is matter which should be taken into consideration.

3182. Have you turned your attention to other parts of the coast?—No.

3183. Then you are not aware whether there are more wrecks at other parts of the coast?—No; I am not.

3184. Are you aware how many lives have been lost upon the occasion of those wrecks which you have stated?—It states that several of the crews were lost, but it does not give the number.

3185. You have stated that it would be a great advantage to the trade of the district that this improvement should be made at Carlingford Lough; have you any suggestion to make to the Committee with respect to raising money for the district, in order to make this passage?—None whatever. So far as the immediate trade is concerned, it is certainly secondary to the benefit to the community; therefore I should not think of exacting any toll of any kind.

3186. Do you think it would be possible to raise the money in the neighbourhood for making this improvement?—I think not.

3187. If this great advantage to the trade of the place would accrue, do you not think it fair that they should pay for it?—I am not prepared to say that.

3188. With respect to the advantage of a harbour of refuge, whom do you conceive

Mr. J. Ramsay.

29 July 1857.

conceive to be the best judge of that?—The captains and people frequenting the Irish sea.

3189. They would be probably the people interested in the trade of Liverpool?—Yes, I should say so; a great number of those vessels that were lost sailed from Liverpool.

3190. It would be persons interested in the Liverpool trade that would give the best opinion whether it would be advantageous as a harbour of refuge?—I should say the Liverpool merchants, and all south of Liverpool, both on the English side and on the Irish side.

3191. Trading from where?—Coasting or going foreign.

3192. From Gloucester?—Gloucester and the Bristol Channel, and Drogheda and Dublin.

3193. Are there any ships sailing from Gloucester that would pass Carlingford?—I am sure that there are vessels that would pass that harbour.

3194. Speaking generally, it is the Liverpool trade?—I should say so.

3195. Mr. *Augustus Smith.*] For what particular trade do you suppose that this port would be available as a harbour of refuge?—For the coasting and the foreign trade.

3196. What particular foreign trade would pass along that line?—Vessels going outwards to America and round the north of Ireland pass that channel.

3197. If they passed the north, are there not other harbours that would be available for them north of Ardglass?—There is none but Belfast Lough; and, independently of having that lough, a number of vessels have been wrecked in Dundrum; whereas, I think, if Carlingford was made available, they would have been saved.

3198. Does that list of wrecks that you gave show where the vessels belonged to; whether it was local shipping, or shipping from foreign parts?—It states the particulars.

3199. It could easily be made out what may be considered fairly as local shipping, and what as belonging to the foreign trade of the country generally?—Yes, I think so.

3200. Sir *R. Ferguson.*] Did I rightly understand you to say that the present lights would be available for this new channel?—I should say so. I have arranged that the present direction shall answer for the new code; it is the present sailing directions that have been available, and that are always used, that I propose.

3201. Are there not a great number of vessels embayed by St. John's Point and that part of the county of Down which at present have no place that they can run for?—Precisely. Most of all the vessels that I have detailed have been lost there. Those that I have detailed are confined to St. John's Point and Cooley, immediately on the south of Carlingford Lough; and I think there is little doubt that, had Carlingford been available as a harbour of refuge, most of those vessels would have run into it and have been saved.

3202. Besides that, a large number of vessels caught between it and Dublin could not return to Dublin when the wind blows strong from the south?—Yes; and I think that the vessels that I have referred to, if there had been a harbour of refuge, would have run for it.

Lunæ, 3° die Augustii, 1857.

MEMBERS PRESENT:

Mr. Baring.	Mr. Macartney.
Mr. Dodson.	Lord Naas.
Sir Robert Ferguson.	Mr. Philipps.
Mr. J. H. Gurney.	Mr. Augustus Smith.
Lord John Hay.	Sir Frederick Smith.
Mr. Kendall.	Lord Adolphus Vane Tempest.
Mr. Liddell.	Mr. Wilson.

JAMES WILSON, Esq., IN THE CHAIR.

Joseph Cowen, Esq., called in; and Examined.

J. Cowen, Esq.

3 August 1857.

3203. *Chairman.*] WHAT is the present position that you occupy with regard to the navigation of the Tyne?—I am the Chairman of the Tyne Improvement Commissioners.

3204. For what purpose were the Tyne Commissioners appointed?—Up to the year 1850, the conservancy of the Tyne had been in the hands of the corporation of Newcastle, and in 1850 an Act was obtained to place the Tyne in the hands of Commissioners.

3205. Will you tell the Committee the limit of their jurisdiction?—The limit of their jurisdiction is from Spar Hawke, a point in the sea, to Hedwin Streams.

3206. Is that outside the bar?—It is outside the bar.

3207. How far?—I can hardly tell you unless I saw a chart, as to the distance.

3208. Is it a point of land?—No; it is a point in the sea.

3209. How do you define the point; is it a rock or a sand bank?—It has always been defined by parties accustomed to know where it is, and we go there and declare our boundaries; at any rate it is covered with sand.

3210. Do you take it from a geographical point, or from some mark?—It is a point of which we know the position by its distance beyond the bar; I have been down to the place repeatedly, and of course could go back again if put into a a steam boat; but I cannot tell the exact distance beyond the bar.

3211. The boundaries of your commission are from that point in the sea to a point considerably up the Tyne?—As far as the tide flows to a point called Hedwin Streams.

3212. That is above Newcastle?—That is above Newcastle, nearly 10 miles.

3213. Your commission were appointed in 1850?—Yes, in 1850.

3214. What was the precise object for which you were appointed; can you state to the Committee the terms of the commission?—I might state the constitution of the commission. There are 18 of us, six are elected by the corporation of Newcastle, two by the corporation of Gateshead, three by the corporation of South Shields, and three by the corporation of Tynemouth; four are appointed as life Commissioners by the Act of Parliament, two of whose places are to be filled up by the Lords of the Admiralty, either when they die or when they resign, and I am one of those four.

3215. You consider that the duties of the commission have reference to the navigation of the Tyne from the point above Newcastle, which you have stated, out to this point beyond the bar in the sea?—Just so, and in all bays and creeks where the tide flows.

3216. For the purpose of this inquiry will you confine your answers to that part of your duty which has reference to the portion of the Tyne outside the bar, so far as the purposes of refuge are concerned?—I will do so.

3217. The attention of the commission, of which you are the chairman, has been called to the danger at the mouth of the Tyne, has not it?—It has.

J. Cowen, Esq.

3 August 1857.

3218. I think there is a very dangerous bar across the mouth of the Tyne?—There is a bar across the mouth of the Tyne.

3219. Upon which there are very frequent shipwrecks?—There are very frequent shipwrecks in consequence of the bar.

3220. What steps have you taken with a view to the removal of that bar, or the modification of it?—The steps that we have taken have been to obtain an Act of Parliament for the purpose of forming piers, which piers will go beyond the bar into a depth of 15 feet of water, when completed according to the powers in our Act of Parliament.

3221. On both sides of the opening of the river, north and south?—Yes, on both sides of the entrance of the river, north and south.

3222. You have a very rocky coast immediately to the north, have not you?—Immediately to the north it is a rocky coast.

3223. At the back of Tynemouth?—At the back of Tynemouth.

3224. And it is a dangerous point?—There are dangerous points there.

3225. Do you propose to mask those rocks by the piers which you are running out?—We think we shall, but more especially we shall be able to attain that object, we think, if we could go out further; but having an Act of Parliament, we have been obliged to shape our course according to the extent and the terms of that Act.

3226. How far do you propose to extend your works beyond the present position of the bar?—About 1,000 feet beyond Spar Hawke.

3227. You are going out as far as the limit of your jurisdiction, and 1,000 feet further?—I should say so, just looking at the map as it is here.

3228. You do not know, from any document which you have before you, how much it is?—I do not.

3229. If I rightly understand you, you are going to construct piers beyond the limit of the jurisdiction of your commission?—Beyond the limit of the jurisdiction of our commission it will be above 1,000 feet, I have no doubt.

3230. Lord *John Hay*.] Which pier is that?—Both piers; they go out to an equal point in the sea.

3231. *Chairman*.] Does your Act of Parliament enable you to expend your funds beyond the limit of your jurisdiction?—Yes; it enables us to expend the money on those piers in the way we have laid them down, in accordance with the authority under the Act of Parliament, and with the approbation of the Admiralty.

3232. The Act of Parliament contemplated those piers?—Yes.

3233. And it provides for them?—Yes, by a special tonnage rate upon vessels entering the harbour.

3234. How are your funds raised for those improvements?—The funds are raised for the piers by a tonnage rate upon the ships.

3235. Entering and leaving the harbour?—Entering the harbour.

3236. Are those rates collected at the customhouse?—Yes.

3237. By the customhouse authorities?—Yes, through an arrangement that we have made with the collector at each customhouse, and it is kept as a separate account entirely distinct from any other accounts connected with the River Tyne Commission.

3238. And the shipowners of the Tyne have no objection to the payment of a rate for that purpose?—They made no objection, because we got the Act of Parliament without any opposition whatever.

3239. What is the rate per ton?—The rate per ton is 1*d.* upon coasting vessels, and 2*d.* on foreign vessels up to a certain number of voyages; sailing vessels pay, up to seven voyages during the year, and steamers to 15, after that they are free.

3240. For the year?—Yes, for the year.

3241. But they pay again the following year?—Yes.

3242. Is this rate collected for the purpose of creating a fund, or creating a security to borrow upon?—It is to raise a fund, and we have a power to borrow 200,000*l.* upon the security of that rate.

3243. Have you effected a loan?—No, not up to the present time.

3244. Up to the present time all the capital that you have expended has been derived from the rates charged on the vessels?—It has.

3245. Are those rates to be permanent?—No; the rate is to terminate when the debt is paid; that is, supposing the sum borrowed to be 200,000*l.*; after that

that has been collected and paid off the rate will terminate, and the harbour would become free.

3246. That is, when you have funds sufficient to effect all your improvements, and to pay off any money that you may borrow upon the security of those rates?—Just so.

3247. Therefore the rates will be mortgaged or hypothecated for any monies that you borrow for this purpose?—Yes.

3248. And if you are obliged to borrow a capital sum of money, the rates will remain permanent; first, for the payment of the interest, and, second, for raising a sum to liquidate the debt ultimately?—Yes, and then for a sum to keep the works in repair.

3249. Have you any lower rate, for the purpose of keeping them in repair; when you require a smaller sum than the rates would provide for, what means have you of diminishing the amount?—The amount is diminished by setting apart a fund, and that fund being set apart, it is presumed that the interest will be sufficient to maintain the piers after a given period.

4250. Then the financial arrangement, if I understand it, is this: you are authorised to levy a certain rate upon all vessels entering the Tyne; first, for the purpose of making these improvements; secondly, for the purpose of creating a fund upon the guarantee of which you can borrow money for making those improvements; thirdly, for the purpose of paying the interest of such loan and the capital by a sinking fund; and, fourthly, for the purpose of creating a fund the interest of which would keep up the repairs?—Just so.

3251. What progress have you made with regard to the proposed improvements outside the bar?—We are going on with the formation and the building of the piers; but, as a matter of course, we must go from the land side; therefore we have not yet got to the outside of the bar. This map shows how far we were in March last, and I can state the sum we have paid up to the present time.

3252. You have effected no work as yet outside the bar?—No work as yet outside the bar, although we have reason to believe that the work, so far as it has gone, has produced an effect upon the bar, inasmuch as, from the accounts that we now have, the bar is better than it used to be in former times.

3253. You are confining the stream and making a greater scour?—Just so; we are confining the stream and making a greater scour, which we ultimately expect will materially reduce, if not entirely remove, the bar.

3254. What plan is to be adopted with regard to those piers in the sea; will they be done by the stage plan or by masonry?—We are tipping the rubble stone into the sea, and will continue to tip it till it makes its own foundation; and after we have got to low water, we shall begin the mason work with ashlar stone.

3255. Have you erected stages from which you throw over the rubble stone the same as at Holyhead and Portland?—That is applicable to the south pier, but at the north pier we have done a great deal of mason work upon the rock; at the Tynemouth side of the river we take it out on the rock to deep water before we deposit the rubble stone.

3256. You are building above low water-mark?—Yes, with the ashlar-work, but we are under low-water mark with the tipping.

3257. Has the Tyne ever been used as a place of refuge by vessels frequenting the neighbouring ports in the case of storms?—It has; in fact, practically, it has been the only place of refuge, or that could be taken in that way along the coast; that is, north of the Humber; and it has frequently been used, and is still so, because vessels can get into it, and take it at times when they cannot take any other port.

3258. In particular states of the tide?—Yes, in particular states of the tide and particular states of the weather.

3259. Would it not be a very dangerous port to take at low water with that bar?—You would take it with the tide.

3260. All the ports along that coast are occasionally taken by vessels in distress under similar circumstances?—They are, but not to the same extent.

3261. The trade of the Tyne is larger in the aggregate than that of the other rivers?—We have nearly as many ships going in and out as all the others have put together; that is, as many as there are in Sunderland and in Hartlepool

J. Cowen, Esq.

3 August 1857.

pool and in the Tees; not quite the same amount that they all have, but nearly so.

3262. Can you speak from your knowledge that many vessels bound for Stockton or for Sunderland or for Hartlepool, or for any of the neighbouring ports, enter the Tyne for the purpose of taking refuge?—No, not of my own knowledge.

3263. You do not know that such is the case?—I only know from the common report, and the general observations that pass amongst us in the commission that it is the case, but I do not know it of my own knowledge.

3264. Have you frequently heard of foreign vessels going to Scotland, or coming along these coasts, taking the harbour of the Tyne?—Frequently, and it is frequently the case that vessels going to Sunderland Harbour will put in, and wait till the tides will take them into Sunderland harbour.

3265. What will be the width between the extreme ends of those two piers when constructed, to their full extent at the opening?—One thousand one hundred feet.

3266. Will there be any shelter inside those piers, excepting that which is afforded by the river?—Yes, decidedly there will be shelter immediately the piers are formed. They are so formed, that when a vessel gets within them, although she may not immediately get into still water, she will very soon.

3267. The north pier will take a course towards the south?—Yes.

3268. And the south pier will take a course towards the north?—Yes, just so.

3269. And there will be an opening in the centre of 1,100 feet between the two?—Yes, and those two piers will shelter a vessel when she has got in the proper way between the two piers.

3270. Are those piers only 1,100 feet long, including the curve?—No, I think the south pier is 4,200 feet long.

3271. Including the space to the extent of Spar Hawke and beyond it, it is 4,200 feet?—Yes, the projection on the north side from the rocks goes much further out into the sea than on the south side, and consequently it is not so long there; the land projects, and that pier is not so long by far.

3272. The north pier would protect the harbour from the north-east gale, and the south pier from the south-east gale?—Decidedly so.

3273. The gale to the east would blow straight into the harbour?—The gale to the east would blow into the harbour.

3274. Can you state what average of harbour you will have at low water when this is completed?—No, I cannot do that, but I can state the number of vessels that can be contained in the harbour at all times of the tide, both at high and low water. We had in the harbour in April last, on one occasion, 1,250 vessels; we have frequently had as many as 1,500 vessels in the harbour.

3275. You speak of the existing harbour?—I speak of the existing harbour.

3276. You have stated what the objects of these external works are, and what the expected effect of them will be; can you inform the Committee of the extent of the trade of the Tyne?—Yes, I think I can; but may I be allowed before I proceed further, to put in the Act of Parliament for the formation of the piers, and also a report of Mr. Walker. Those will throw a considerable light upon the subject, and save a great deal of time.

3277. Is it a long Act?—It is a pretty long Act. This is Mr. Walker's report with reference to the piers in question, and the plan, and so on.

Vide Appendix.

3278. Mr. Walker is the engineer for it?—Yes, he is. (*The Report was delivered in.*)

3279. How long do you expect this harbour will take in construction?—It depends a good deal upon the means of getting the money; the money market has been a little tight lately. We estimated it from five to seven years from the commencement.

3280. Have you had an estimate of the cost of these piers?—Yes; we have had an estimate of the cost of the piers, so far as we are authorised by the authority of the Admiralty to proceed, but not an estimate of the cost of the piers to the extent to which the Act of Parliament allows us to go.

3281. Are you able to speak to the extent of the trade entering this harbour?—I am; I have prepared some documents which will throw considerable light upon that.

3282. From what sources are they prepared?—This is the registered tonnage taken from the Parliamentary Returns.

J. Cowen, Esq.
3 August 1857.

3283. Will you confine your answer to the Tyne?—Yes; the registered amount of the ships and tonnage of the Tyne in 1855 was 1,655 ships, and the tonnage 380,150; in 1856, it was 1,704 ships and 391,870 tons; that is merely the registered ships and the tonnage. I will give now the ships and the tonnage that have cleared outwards and inwards; in 1855, we had 19,331 inwards, and outwards 38,662, with 5,825,316 tons.

3284. Did I rightly understand you, when you spoke of the registered tonnage, that you meant the tonnage belonging to the Tyne?—Yes.

3285. You meant the tonnage registered in the ports of the Tyne, and now you speak of all ships that have entered and cleared from the Tyne?—Yes, I am speaking of vessels that cleared out of the Tyne in the year 1855, which, irrespective of small vessels that are clearing and going out to Sunderland and other places, of which we have a difficulty in getting an account, amounted to 38,662, with a registered tonnage of 5,825,316. Now I come to the year 1856, which I take from a return that has just been presented to Parliament. We have, inwards and outwards, 39,554 ships, with a tonnage of 6,050,574.

3286. Are those taken from the Customhouse Returns?—Yes, they are from the returns now presented to Parliament.

3287. Of course they include both the coasting and foreign trade?—Yes, that includes both. The next thing is the average size of the vessels: I find that the average size of the vessels of the Tyne is beyond any other port in the kingdom, except London and Liverpool; the average size is 155 tons 7-10ths. I have also got the average size of those other places. The Committee wished some information with respect to the trade.

3288. You have before you certain papers which show the relative importance of the trade of the Tyne; will you put them into the Appendix, and a reference to this question will show where people can find those facts if they wish to look for them?—Yes. (*The same were delivered in.*)

Vide Appendix.

3289. Have you anything further to state with regard to the construction of this external harbour, which would show its importance with reference to the shipping frequenting these coasts?—I have stated that we have frequently accommodated or had in the harbour upwards of 1,200 vessels. Now, if these piers are carried out to the extent to which they are quite capable of being carried out either by the present arrangement or by an extended arrangement, I am not at all out of the way in stating that we should find accommodation for 2,000 vessels. I made the same statement on a deputation before the Lords of the Admiralty and the Board of Trade, four years ago, and I see no reason whatever to change that opinion, because, as we have progressed, I see that I am borne out in that opinion; and we are now making dock accommodation which would take the entire trade of the Tyne out of the port, or out of the river; that is, that it would contain the whole amount of ships that the river at present contains, about 1,400 or 1,500; there are two docks now in course of formation, one by the Tyne Commissioners and another by the North Eastern Railway Company; the one by the Tyne Commissioners has 55 acres in it, which would contain 500 ships; the one by the Railway Company, at the opposite side of the river, would contain, I believe, a larger number, but take it at the same. We have just obtained an Act to construct a dock at another point, at Coble Dean, which would contain 300 or 400 vessels.

3290. There is no doubt that the Tyne is the place of the largest trade on that particular part of the coast?—There is no doubt of that.

3291. There is no doubt also that it is the most northerly port?—There is no doubt also that it is the most northerly port.

3292. You have no port of any importance north of the Tyne till you come to the Firth of Forth?—No, except Blyth.

3293. Is not it your opinion then that the mouth of the Tyne is the best place for a harbour of refuge?—I should tell you the steps the Commissioners have taken: the first thing after we came into existence was to inform ourselves statistically as to the amount of the trade along the coast, and what ought to be done with a view of calling the attention of Government to the formation of a harbour of refuge; and by the time we had been 15 months in existence, we presented a memorial to the Lords of the Treasury and the Board of Trade upon that subject. We followed that up by the Act of Parliament to make these piers. We then, after that, followed it up by deputations from all the corporations and people interested in that part, to the Lords of the Admiralty, to the Board of Trade,

J. Cowen, Esq.

3 August 1857.

Trade, and to the Treasury, urging upon them the propriety of making a harbour of refuge somewhere; and we said then, and I say so still, that we thought the Tyne was the best place.

3294. Are your reasons of a local character, or are they of a general character?—I can give my reasons, if you please. If you ask my opinion as to the benefits that would arise from a harbour of refuge on the north-east coast, I should be glad to tell the Committee. A harbour of refuge, I think, is exceedingly desirable, and of course I say it ought to be made: that has been my opinion expressed long ago by those various deputations; but I would say that, if the greatest amount of benefit is to be derived from the laying out of the public money, that benefit would be by improving the existing harbours. I do not say any one existing harbour, but the existing harbours, because practice has shown most distinctly that the vessels do run and will run to the ports they are bound for; and I should be borne out, I believe, on that point by the bulk, if not all, of the nautical evidence you could examine, that the improvement of the existing harbours would afford the greatest amount of benefit to the shipping.

3295. Your opinion amounts to this, that you are clearly of opinion that there is required on that part of the coast a harbour of refuge?—Yes.

3296. And you are of opinion that the refuge should be constructed rather in the existing ports than by any work on an isolated part of the coast?—Yes.

3297. And you have formed that opinion because you think that the masters of vessels have always a strong disposition to run for the ports for which they are bound in preference to any other spot?—Yes.

3298. Will you tell the Committee whether masters of vessels would be much influenced in the event of being caught in a storm by running for a port where there was a charge for the entry of the vessel?—Yes, I think they would; and I would further state my opinion upon that subject, that I think they ought all to be free, so far as refuge goes. I think that each of those harbours where such accommodation should be extended ought to pay a certain amount themselves, and the extended accommodation by the public money should be free to vessels, taking it as a harbour of refuge, because I think captains would unquestionably be influenced if there is a charge, particularly if it were a high charge.

3299. Do you think it would diminish very much the value of a harbour of refuge if vessels could not go into it without a charge?—Yes, decidedly I do; and I think, as the tendency of late years has been to competition, that it has diminished rather than increased the tax.

3300. Do you propose to make any charge for vessels entering the Tyne not for purposes of taking refuge?—Yes; so long as we are confined to our own funds we must, because, if we borrow money upon mortgage, we have no power to reduce the tolls till we pay off the money; but supposing it was thought expedient to assist us by Government aid, so far as vessels taking refuge are concerned, they should go free.

3301. Still you are of opinion that a harbour of refuge is so important on the north-east coast, that if it were the opinion of any professional officer who might be appointed for the purpose of examining the coast, that another place was better adapted for a general harbour of refuge, you would still be of opinion that the public importance of it would be so great, that it would be desirable to make it even in another place?—Yes; but I am prepared to state that its utility would be materially diminished by its being in any other place.

3302. That is your opinion?—Yes.

3303. Mr. *Augustus Smith.*] What size ships would this outer harbour you propose take?—Vessels of 30 feet of water.

3304. At low water?—No; at low water vessels drawing 15 feet of water might get in; or, I might state, that we should in all probability be able to take them in at 18 feet.

3305. It would not be serviceable for men of war?—Men of war have been in the river frequently. A man of war could not go in at 15 feet, but it could go in at ordinary tides.

3306. If a harbour of refuge were constructed upon any part of this coast which men of war could take at all times of the tide, would not that be much more desirable and important with reference to the defence of the country, than merely having a harbour confined to small vessels?—No doubt it would, and that would lead to this question, that the Tyne is the only place where you can load

load your men of war with steam coal; and you would be able, by even your present arrangements, to take men of war in; but, presuming that the piers could be taken out to 25 or 30 feet, which there is no difficulty in doing if we had the funds to do it, you could get men of war in at all times of the tide.

3307. That would not be according to the plan now projected?—No.

3308. You spoke of 1,200 vessels being often in the port; can you give the Committee any idea what proportion were there for refuge, and what for commercial purposes connected with the trading of the locality?—They would be principally for commercial purposes connected with the trading of the locality; there would be some in there for refuge.

3309. About what proportion do you suppose?—I cannot give you a statement of that kind.

3310. With what countries is the foreign trade from the Tyne chiefly connected?—With the ports of France, and in the Baltic, and in the Mediterranean; the East and West Indies, and America.

3311. They would be generally going eastwards or southwards?—Sometimes northwards; we have a great many American vessels going out.

3312. What proportion of American vessels?—I have not prepared myself with any table of that kind, and I cannot answer that question. I can state generally the amount of our foreign trade as compared with the local trade.

3313. I want to know the proportion of the foreign going trade that would probably go southward, or northward, or eastward?—I can only answer that by telling you that our foreign trade is about a fourth to a fifth of the whole.

3314. What proportion is likely to go northward, what eastward, and what southward?—I cannot answer that.

3315. Any harbour of refuge to the south, of course would be an advantage to any foreign trade you might have going in that direction, or to the eastward?—In the case of vessels going to the eastward, a harbour to the south would be an advantage, but certainly not much, inasmuch as if they were going to the East they would take the East at once.

3316. From what point do you find the most heavy and dangerous gales upon that coast?—South-east, east, and north-east.

3317. Do you find they generally set in from the south-east?—Generally I think so; but I would rather Mr. Robinson should answer that question.

3318. You could not answer which are the most prevailing winds, or the longest?—No; I could state my own notions, but I think you had better get that from Mr. Robinson.

3319. In what direction is the coasting trade generally bound?—To all parts of the kingdom.

3320. The greater part?—Southwards. A large portion of the trade goes northward into Scotland, and into the Baltic.

3321. What proportion is that greater part of which you speak?—I cannot say, because latterly we have not kept pace in increasing so much south as we used to do formerly; the railroads have made a great inroad upon the coal trade into London, and that has diminished the number of vessels that would otherwise come, so that the trade has not increased in the same ratio as it did previously.

3322. And a harbour of refuge would be more important to you to the south than to the north, so far as the coasting trade is concerned?—Yes.

3323. Lord *John Hay*.] You said that the stream was confined by the portion of the piers which has been already made outside the Tyne?—It has been so.

3324. So as to produce an appreciable effect upon the bar?—Yes, inasmuch as the marks, taking them from Mr. Rennie's time in 1813, were 6½, we now frequently have 8, and I should say we have an increase upon the bar of from 15 to 18 inches, and we have not yet got out to the part where we could have expected any improvement; hence we are led to believe that what we are doing will be of more advantage.

3325. How far does the northern pier project as yet?—I cannot tell you how many yards, but on the plan I produced you have it marked up on March last, and since then it has probably gone 150 yards.

3326. I think you said that when those piers were completed, and vessels ran in, the instant they passed the end of the piers they would be protected; would they be protected unless they went under the cover of the piers, round to the end of them, supposing a gale blew from the eastward?—They would have to get so far within the piers; but I think I said almost immediately they got within

J. Cowen, Esq.

3 August 1857.

within the piers they would be in still water, or such water as would give them perfect protection.

3327. In calculating the amount of space that there will be for vessels when these piers are concluded, did you take into consideration the amount of space that would be wasted in consequence of there being no protection?—Not at all; our calculation is based upon a fact, because we have had from 1,200 to 1,500 vessels in the harbour frequently.

3328. Where was that?—Right within the harbour.

3329. Until the bar has been removed, vessels of a large class will not be able to derive any advantage whatever from this harbour of refuge?—We take the largest class of vessels in already.

3330. At what portion of the tide?—At high-water, or nearly so.

3331. What is the rise and fall?—About 15 feet; we said 16 feet; but 15 feet is the average spring tide; 15 feet and 15 feet would give 30 feet at high water, according to these piers, taking them out to 15 feet. Mr. Walker said, when I made that assertion before Sir James Graham, that I might have fairly stated that it would be 18 feet; therefore, by extending these piers further out, you may get into any amount of water you like.

3332. That would be for the purpose of giving an anchorage immediately within the piers?—Not immediately within the piers, still taking the vessels up into the harbour of Shields, where they would be perfectly secure, and there would be a perfect waterway equal to the depth on the bar.

3333. What do you suppose will be the depth of water on the bar when these works are completed?—At low water ordinary spring tides, 15 feet, and 30 feet at high water.

3334. Do you consider that a harbour which has only 15 feet at low water, is a fit harbour of refuge for the trade upon that coast, and for the national trade in general?—No; I would not like to say it is with 15 feet at low water, especially if you want to take in men of war; of course, it would not; but for much of the ordinary trade passing along the coast, it would be fit; but your Lordship will see by the direction of these piers how very soon you get out into 30 feet of water, and if made to answer all those purposes the pier should be taken out into 25 feet of water, and then you will have sufficient water for all purposes.

3335. Without referring to men of war, is there not a large proportion of large vessels that frequent the harbour of Newcastle?—Yes.

3336. What proportion of the vessels belonging to the trade of Newcastle draw over 15 feet of water?—I can only state that the largest of the number of vessels, that is the larger class of vessels that frequent the port, are larger than the class which frequents any other port along the east coast, or any other port except London and Liverpool; and when I say 15 feet of water, that is immediately at low water, that is for a few minutes, or half an hour. Within an hour of that time you have four feet more water either at the ebb or flow, because we have five hours flow and seven hours ebb; therefore, it is only to the moment of low water that that 15 feet applies.

3337. Can you state what the proportion of vessels is, that draw over 15 feet water?—No, I cannot.

3338. But there are a considerable number of vessels?—Yes.

3339. Where do the wrecks principally take place upon that portion of the coast; to the north of Newcastle, or to the south?—The principal part of them, if you take the coast, would be to the south, but generally most of them are opposite the Tyne, arising from any gale, or a continued contrary wind, you find there is a larger amount of vessels go into the Tyne than to any other place. I think it will be found, if it is minutely examined, that opposite the Tyne, within a given space, there is the largest number, and if there is double the number of vessels, or as many vessels to go in and out of that port as all the other ports put together, that is one reason why it is sure to be so.

3340. You said this was the only place with regard to men of war, where they could get steam coal; do you consider Newcastle coal is the best coal for men of war, or for any vessels?—We have done so hitherto, and the steam coal leaving the river Tyne forms about one-third of the whole coal we send out. And at the dock the Commissioners are now forming at Hay Hole (to give you an idea of the extent of the steam coal), we ship about 1,500,000 tons annually.

To

To the south of the Tyne we have no steam coal, or comparatively none; all the steam coal is from the north of the Tyne.

3341. Then are you not aware that Newcastle coal is generally disliked very much by men of war from its being much dirtier than other coal?—I cannot say that I am aware of that. I know that many experiments have taken place, and that there is a notion that the Welsh coal is clearer and so on; but I know other nautical men would give decidedly a preference to Newcastle. Commercially I look at the fact of the quantity we ship, which is the greatest proof of how the coal is liked.

3342. Lord *Adolphus Vane Tempest.*] I believe your view is, that increased harbour accommodation is absolutely necessary on the north-east coast?—Yes, it is.

3343. And that greater benefit would be derived from spending money upon the existing harbours than by the construction of any large harbour of refuge?—Decidedly; for all practical purposes, it would be unquestionably the best plan.

3344. And you think that a sufficient remedy would be applied to prevent the enormous amount of loss of life and property by improving the present harbours?—Yes, for men-of-war, or otherwise.

3345. And you think it would be altogether a fairer principle to improve the existing harbours than to make a harbour upon some other part of the coast, where ships would go not belonging to that port?—Yes.

3346. If it was thought advisable to construct a harbour of refuge, with Government aid, at Hartlepool, a large proportion of the ships using that harbour as a refuge would be going away from the ports they were in the habit of trading to?—They would.

3347. I believe I am right in saying that the chief part of the Hartlepool trade is foreign trade?—No, not so large a proportion as there is in the Tyne. I believe there is not much difference, probably.

3348. A large proportion of the wrecks that take place on the coast are of ships denominated colliers?—Yes, the largest portion.

3349. And I believe I am correct in saying that Hartlepool has a less number of colliers trading to it than the other ports on the east coast?—Yes, considerably less than either the Wear or the Tyne has.

3350. The effect would be, therefore, if a harbour of refuge were constructed at Hartlepool to draw ships that were in the habit of going to the ports of Seaham, and the Wear, and the Tyne, to the port of Hartlepool, which they are not in the habit of going to?—It would.

3351. You are acquainted with the shipping coal trade. Do you not think that the effect of a harbour of refuge constructed at Hartlepool would be to increase the shipping of the coal in that port?—Yes, I think it would.

3352. That ships would go to the harbour of refuge, and might be induced to take their cargo to Hartlepool, rather than incur the loss of time that would ensue in going on to the harbours from which they ordinarily traded?—I think it would.

3353. Do you consider that an expenditure of money might be properly applied with regard to improving the present existing harbours on the coast?—Yes, I think, very advantageously.

3354. Do you consider that money might be very advantageously expended at Sunderland?—I do.

3355. It was stated by Mr. Calver that the present existing tidal harbours were dangerous decoys; do you consider that that was a proper designation of the present existing harbours on the east coast?—No, I think not; it is a favourite word of Mr. Calver's, inasmuch as I have heard him make use of it repeatedly. Now, it cannot apply to the Bar Harbour at the Tyne, inasmuch as the facts are the contrary, that vessels can get in there when they cannot get in at any other place.

3356. Are not a large number of ships saved during the year from the present existing harbour accommodation?—Yes, no doubt.

3357. Do you consider the words "dangerous decoys" not a proper designation of the present harbours?—Certainly.

3358. Your view is, that tidal harbours are not, perhaps, as advantageous as they might be, but by the expenditure of money they might be made advantageous for that purpose?—Decidedly.

J. Cowen, Esq.

3 August 1857.

3359. Is it not the case that, though the Welsh coal makes less black and smoke than the northern coal, the northern coal is supposed to be more beneficial, as lasting very much longer; that a smaller proportion of the northern coal will go very much farther than a larger proportion of the Welsh coal?—I believe it has been proved that a given quantity of Newcastle coal will raise a greater quantity of steam than a given quantity of Welsh coal.

3360. Mr. *Liddell.*] Do you consider that the declared value of the goods exported is any criterion of their actual value?—No, certainly not, at the present time, when there is no duty paid upon them; it is quite a deception to suppose so. Invariably, since the duties have been taken off, the ports give random shots, if I might so use the term, as to the amount of the goods exported; and I would not take, as a criterion to guide me by any means as to the importance of the port, the declared value of the goods at the Custom House.

3361. You consider the amount of the duty paid at the custom-house at each port an evidence of the extent of the trade in general merchandise?—I do.

3362. Have you any reason to believe that the scour produced by the works already constructed has diminished the bar to any perceptible extent?—The bar has diminished, I have no doubt in my own mind, in consequence of the works going on, to the extent of from 15 to 18 inches.

3363. Was it a changing bar before the works were constructed; did not the bar change at certain times; were not changes perceptible at various times?—Just so; it is a shifting sand, which varies. There is a mark on a stone made by the late Mr. Rennie on the Trinity House at North Shields, and that is always taken as the datum. When a pilot tells you that it is more or less than the mark, it is 6¼ feet on the bar; when I say it is 15 to 18 inches more than the marks, it is 7½ feet or 8 feet now. I have a return from the harbour-master, and I have observations upon that by the authorities of the Trinity House, and they have now gone on regularly with that state of improvement; no going back again.

3364. You state, from the observations which you, as chairman of the Commission, have made, that the state of the bar varies less than it did before the works were begun?—It does.

3365. Can you state what the arrangements actually are that have been made for the construction of this breakwater; is the rubble for the construction of the foundations procurable readily and near at hand?—Yes, the bulk of the rubble is; we get it from the Trow rocks.

3366. How far is that off?—A mile probably; we laid a railway to it, and bought some 40 acres from the Dean and Chapter to work the stone; and we are depositing stones, many of them three, four, five, six, and some of them up to eight tons weight, from those rocks.

3367. And you have no doubt of obtaining a sufficient supply for the extension of the breakwater to any distance it may be required?—None.

3368. Can you state what will be the total estimated cost of completing the work?—No; I can state the present contract; it is 166,000 *l.*

3369. To what distance will the present contract complete the breakwater?—Two-thirds of the plan laid down upon that map, that is 166,000 *l.*; the Commissioners taking a pretty fair proportion of the sea risk, which we could get no contractor to take; therefore I have no doubt that the present contract for the completion of the piers, to two-thirds of the extent will take our 200,000 *l.*, and I think it will take 200,000 *l.* more to complete the rest of the piers, because the one-third is going out into deeper water, and will require a great deal more money to do it. I stated that before Sir James Graham and Mr. Cardwell, and I have seen no reason to change that opinion, but on the contrary I have seen it confirmed.

3370. You have been asked about the danger which ships incur at present at the mouth of the Tyne, is not it the case that the Herdsand lies on the one side, and the Tynemouth rocks that jut out to a very considerable extent are most dangerous on the north side, so that you might almost term them the Scylla and Charybdis of the mouth of the Tyne, a vessel escaping one goes on the other?—Yes; hence the water will be tranquil to a considerable extent when the piers are out there, and the vessels would not be liable to be thrown upon the rocks or sands at all; there would be a straight course up the river.

3371. In an easterly gale you must anticipate a very heavy roll of sea upon that space you describe as 1,100 feet for the entry?—Yes; but the piers are formed with a view of providing for that. They are so turned, that when the water

water comes in here it will expand itself as it widens out without going up into the harbour to do any injury.

3372. You expect that the action of these two piers will be to break the force of the water which would otherwise be too violent almost for a ship to pass?—Yes; because immediately the water is through the pierhead it has room to expand.

3373. Is not the Tyne even now in its present state to a considerable extent a harbour of refuge; is it not very extensively used as such?—It is extensively used as such, and it is the only place you can use along the coast, and it has always been so more than any other place.

3374. Can you state from your own knowledge what is the largest number of ships you have ever seen make the Tyne, using it as a harbour of refuge, in bad weather?—I think in January 1854 there were 110 vessels, and at that time there were 36 vessels wrecked, and only nine of them belonging to the Tyne, besides all that got into the harbour.

3375. Can you state whether many of those were foreigners?—Several of them were foreigners; there were one or two very large foreign vessels. I estimated, at that time, the amount of loss.

3376. Lord *John Hay.*] How was the wind upon that occasion?—I think the wind was south-east.

3377. Mr. *Liddell.*] When those piers are constructed as projected, and give a depth of 15 feet at low water, will it not be substantially a harbour of refuge for vessels of the size and tonnage which frequent the Tyne?—It would be substantially a harbour of refuge, certainly, for the vessels frequenting the Tyne, and it would take in at low water substantially all the trading vessels that trade upon the coast, all the colliers and the bulk of the traders.

3378. Might not, by further extension of the piers, a depth of 30 feet at low water be attained?—No doubt of it.

3379. Have you engineering authority to justify you in making that statement?—Yes; I have had some conversation with Mr. Walker upon that very subject since I have been in town.

3380. Does Mr. Walker confirm that opinion?—He does, that the piers can be taken out into 30 feet water very easily. Of course it would entail expense, and such an expense as the Tyne Commissioners could not be expected to allow the shipping to be taxed to.

3381. In the event of the Government deciding to assist in the construction of an increased harbour of refuge on the north-east coast, would it, in your opinion, be advisable that the different localities should be inquired into by a Commissioner taking evidence as to the exact site ultimately to be fixed upon?—Undoubtedly; you could come to no fair conclusion without it.

3382. Do you not think that the community generally would expect it?—I think that they would; I think that anything short of that would not satisfy the trading community on the north-east coast.

3383. Mr. *J. H. Gurney.*] With regard to passing tolls levied upon vessels generally, do you consider that a proper mode of defraying the expenses of a harbour of refuge?—I think that the levying of passing tolls would be a very improper mode, and I would hardly like to be the individual with the hardihood in the present day to recommend it; anybody acquainted with the nature of passing tolls must be quite satisfied that the time has come when they ought to cease.

3384. Do you think that the opinion which you have now expressed is that which is entertained by the shipping interest at Newcastle generally?—Yes.

3385. Lord *Naas.*] How do you propose that the expenses of this harbour of refuge, if made, should be defrayed?—I think, if the harbour is constructed at the expense of the Government, it ought to be free.

3386. Do you think it would be fair to make a harbour of refuge, which would be entirely for the purposes of trade, and to which the shipping interest should not be called upon to contribute in any way?—If you call upon the shipping interest, and make the harbour in any particular locality where they are to pay when they go to it, it is my opinion that it would be a failure; that is, that the ships would not go to it if they had to pay for it; vessels would go to it occasionally, but any calculation based upon the supposition of vessels taking it as a mere harbour of refuge, I would have no reliance upon, taking the coast practically.

J. Cowen, Esq.

3 August 1857.

3387. That is, as a harbour toll?—Yes.

3388. But, supposing the whole of the shipping interest whose ships are likely to use that harbour were called upon to contribute to the support of the erection of this harbour, do you think that that would be an unfair claim upon them?—Yes, I think so, taking the radius of a locality of a coast, and saying that every ship should pay so much whether she made use of it or not; you would find a host of opposition to such a project, I have no doubt, all the way along the coast.

3389. Do you think that the existence of a large harbour of refuge upon the east coast of England would have any effect upon the insurance paid upon ships?—Not at all; I happen to be a director of an insurance company, and have been so for many years, and I would say certainly not at the present moment. When the thing has worked out in practice, and when it is really found, by statistical evidence, that the risk is diminished, then would be the time; but it would be a great length of time before you would see the effect of it.

3390. Supposing it were found that the existence of a harbour of refuge on the east coast of England would materially reduce the number of wrecks, do you think that the cost of insurance upon the ship in that district would or would not be materially reduced?—It would not be reduced at all for some length of time; any clubs would only think of reducing when they were practically convinced of the advantages.

3391. If your answer is worth anything, the only object of a harbour of refuge to the shipping interest is the preservation of life, because, if the insurance would not be materially reduced, there would be no gain?—Yes, you would save the property.

3392. You would not save it to the shipowner, but to the insurance company?—Your question goes to this; that immediately a harbour of refuge is made, you go out into the town where you are; if it is in London you go to Lloyds, and you expect, instead of getting your ship insured at 4½ or 5 or 6 per cent., to get it done at three per cent., and that would be quite a mistake.

3393. If it would not be reduced, the gain to the shipping interest would be very small?—No, I do not say that.

3394. Is it not the custom of the shipping interest to fully insure?—No, I do not know that it is the custom of the shipping interest to fully insure.

3395. In what proportion do they insure?—Probably to the extent of two-thirds. If you talk to me as a director of an insurance company, and ask me my opinion, I can give you my answer. I would not take any less premium until I was convinced that there had been an effect produced, that is, that that harbour did save vessels to such an extent as to warrant that reduction, and that could only be ascertained by lapse of time.

3396. You do not think, then, that the shipping interest on the east coast of England would contribute willingly in anyway to the formation of a harbour of refuge?—I think that they would not willing do it, because there is a strong notion that the thing should be done in another way.

3397. *Mr. Liddell.*] Is not it the case that the mutual insurance system is very extensively pursued amongst the shipowners themselves in the north of England?—Yes.

3398. Lord *Adolphus Vane Tempest.*] Is not the insurance that takes place on the east coast chiefly conducted on the principle of mutual insurance amongst the shipowners themselves?—It is so principally; there is a large amount done in that way.

3399. Therefore a reduction in the amount of the loss of ships on the coast would directly benefit the shipowners, as they would be benefited by the reduction of the loss of their insurances?—No doubt; but the question put to me was, Would the premium of insurance be less?

3400. Mr. *Dodson.*] Do you know anything of the passing trade of the Tyne?—No.

3401. In what trade are the vessels engaged which pass up and down that coast?—They are engaged in the Baltic trade.

3402. Vessels going from where?—Going to all parts of Scotland and to the Baltic; and vessels going to America go that way occasionally.

3403. Is there any great amount of vessels in the American trade that pass that way?—I do not know that there is. I could not answer that question with confidence.

3404. Do many vessels, which are not bound for the Tyne, run into it for shelter in the course of a year?—A good many do run into it.

3405. Have you any estimate of the number?—No; we have no data from which we could get the numbers.

3406. Sir *Frederick Smith.*] Did you say that the cost of the two piers now in course of construction would be 350,000*l.*?—Yes, I think so; but we are only going on to complete two-thirds of the piers as laid down upon the plan, and we have only yet got the authority of the Admiralty to go out to that extent, although the powers by our Act of Parliament enable us to go out to the full extent shown upon the plan.

3407. The cost of those two-thirds will be how much?—£. 166,000 it is let for now, and we have expended about 50,000*l.* We have paid 46,000*l.* up to the present moment.

3408. The total amount of the whole will be 350,000*l.*?—The total amount of the whole will be from 350,000*l.* to 400,000*l.*

3409. And for that expenditure, what area of anchorage will you get?—We moor our vessels to moorings. If we had to anchor vessels in the Tyne, with the great number that we have, we should not get on. With the moorings, we should have room for 1,500 to 2,000 vessels.

3410. Of course the moorings will vary according to the depth?—Yes.

3411. Have you any statement showing that?—No; but those will be materially altered in point of depth when the piers are taken out.

3412. Why so?—Because there will be more water in the harbour; there will be deeper water in the harbour.

3413. How is that to be produced, because you limit the area of the water-way?—Yes, we limit the area of the water-way; but if we get 15 feet upon the bar at low water, there are some parts where there are 20 feet in the harbour.

3414. There is a great space of shoal water; how is that to be dealt with?—When the piers are so constructed as to cause a great scour through the harbour from the ebb tide, those sands will to a considerable extent disappear. If they do not disappear, we shall dredge them, and cause them to disappear.

3415. How do you imagine that those shoals have been produced; by silt or by the wash of the sea into the harbour?—By the wash of the sea into the harbour, I dare say; the principal part is sand and silt, which we expect to shut out by the formation of these piers.

3416. You think that those shoals are entirely produced by the sea, and not by the land?—Yes, I think so; but that is an engineering question which I do not quite understand; when the tide is ebbing out, it should take the sand out again, the entrance is so wide that it spreads all the way over here.

3417. Do you not imagine that there will be a great accumulation coming behind the southern pier?—There will be, to a certain extent.

3418. You do not get a very large area?—We get an area to contain 2,000 ships.

3419. By mooring?—Yes, by mooring.

3420. Is it possible to moor your vessels coming in with gales of wind for refuge?—Mr. Robinson will answer that question far better than I can do.

3421. *Chairman.*] The ground upon which you have recommended so strongly a harbour of refuge on the north-east coast is the fact which is exhibited by the Wreck-charts, showing an unusual amount of wrecks upon that part of the coast, is it not?—Yes, it is.

3422. It is your hope that the formation of a harbour of refuge would materially diminish the loss of property and the loss of life?—Yes.

3423. And would therefore very much circumscribe the number of wrecks?—Yes, it would.

3424. In that case, the loss of property which now falls either upon the ship-owner or the insurer, would be very greatly diminished?—It would be diminished, no doubt of it.

3425. There has been always a very strong opposition to the old system of passing tolls whereby vessels were obliged to pay for Ramsgate Harbour that went to the northabout, and for other harbours which they could never use?—Yes.

3426. And a very strong prejudice has been created in the minds of ship-

J. Cowen, Esq.

3 August 1857.

owners in consequence of their having to pay for harbours that they could never use?—Yes, a very strong feeling; because they paid for what they did not get.

3427. And formerly the same kind of objection was entertained with regard to paying for light dues, in respect of lighthouses which vessels did not use?—Yes, the same objection was entertained.

3428. That system of lighthouses has been very much improved of late?—Yes.

3429. So that now vessels only pay for the lights which they really use?—Yes, or which are thought to be of service to them.

3430. And that they think no hardship?—I think not; there are people who think that the charges are too much, and that they ought to be modified.

3431. So far as the principle goes of charging vessels for the use of those lights which they pass, and which are of use to them, there is no objection to the principle of paying a small toll sufficiently large, but not too much, for the maintenance of those lights?—No, I do not think there is.

3432. A harbour of refuge upon the north-east coast would very much diminish the loss of the shipping upon that part of the coast of England?—It would diminish the loss of the shipping on that part of the coast of England considerably, there is no doubt of it.

3433. Now, in the same manner as vessels now pay for lights which they may pass during the day, when they are of no use to them, but which they may also pass during the night, when they may be of use to them, would it be unreasonable for shipowners to object to the payment of a small toll, or a very small rate, for the purpose of constructing and maintaining a harbour which would be of use to them in the event of storms, with reference only to such vessels as pass the harbour, and for which it would be available?—I think it would, because you would work upon the principle of a passing toll.

3434. A lighthouse toll is a passing toll, is not it, in one sense of the word?—Yes; but a lighthouse toll is a toll already in existence, and you must do something to extinguish it; and to modify it is the easiest way to do that; but I draw a distinction between a new passing toll and one already existing, because, if you were to attempt to lay on a moderate toll for vessels passing any particular spot along that coast, you would have a very great opposition to any measure of that kind, inasmuch as the people would say (I know that is the feeling, because I know it with reference to what has transpired in the Board that I have the honour to preside over) that if a charge is to be made it should be made for the *bonâ fide* using of the port.

3435. You think that the present mode of charging light dues is an equitable mode?—I should say that it is; but it is one of those things that should cease to exist as soon as it can fairly be extinguished. These lighthouses have of late been a very objectionable thing to the shipping generally.

3436. Would you propose to extinguish light dues, by placing the charge upon the consolidated funds of the public revenues at large?—I should think that that would probably be a fairer way of doing it. In the end the shipowner would get less freight, and the nation would benefit by that; and I think that it would be perhaps quite as fair a way, or fairer.

3437. That would apply to only a particular part of the nation, would it?—To the nation generally.

3438. Do you see any other objection to a passing toll with regard to a harbour of refuge for a ship, for which the harbour is made, than to the use of a light for a ship which passes that light?—I do; the distinction is this: lights are already rates in existence.

3439. I ask you, whether you see any distinction in the nature of the charge?—I see a distinction in this way; you are going to create a new passing toll for vessels that make no use of the harbour at all; now, admitting that they make no use of the light, the light may be of material benefit to them, although they make no use of it; but the harbour can be of no use to them unless they go into it and make use of it.

3440. If the vessel passes the light during the day it is of no use to her; if she passes the light during the night it is of use to her; if a vessel passes the harbour of refuge in calm and fine weather, it is of no use to her; but if the same vessel is caught in the middle of a storm, necessarily, on its route to the port to which it is destined,

destined, it is of use to her; are they not in that respect the same, that they are for the purpose of vessels passing that part of the coast in the event of an emergency?—Yes: and, if the vessels make use of them, it is right that they should pay; but, if they do not make use of them, it is my opinion that they ought not to pay for them; and I think that you would find a great objection to parties paying. Lights are useful, because they do direct the mariner where he is to go, without going into any particular port; but a harbour of refuge is a very different thing, because, to pay for going by without making any use of it, is, I think, a material distinction.

3441. You do not know of any use that a harbour of refuge would be to any other portion of the community, or any other interest, except the ships that passed it?—Yes; I think it would be of material use to the individuals having cargoes on board those ships.

3442. Taking the shipping and the cargo as one interest, the harbour of refuge would be of use only to the shipping that passed it?—It would be only of use to the shipping that passed it.

3443. The light is of use only to the shipping that passes it?—Yes.

3444. I believe that the practice in the Tyne and the Wear is very much what has been called mutual insurance; that is, the shipowners subscribe; practically they insure each other, and in the event of a loss, they subscribe their money to make good the loss?—Yes, I know that it is so, because I have been in a club of that kind myself.

3445. Then, of course, the charge upon the shipowners in those ports for the risk which they run must be measured by the number of wrecks of their ships in the course of a year?—Yes, no doubt of it.

3446. And if, in the very next year, a smaller number of wrecks took place than in the present year, the shipowners of those ports would be benefited to that extent?—They would.

3447. With regard to general insurance, when you do it by premiums, those premiums are fixed in reference to a calculation of the average of losses, and you require a certain period in order to determine what that average is?—Yes.

3448. But if you found in the course of two years, in consequence of a harbour of refuge having been formed, that the average of loss was considerably less than it had been previously, the competition amongst the insurance offices would lower the premium?—Yes, I think it would; it is only reasonable to suppose so.

3449. So far as regards the shipowners and clubs who mutually insure each other, the very first vessel saved by the harbour of refuge would be to them a gain?—Yes.

3450. So far as regards those ships insured in offices, as soon as your general average had been reduced, competition would compel them to reduce their premiums?—No doubt.

3451. And therefore the lessened risk would be exhibited by the lessened payment by the shipowner one way or the other?—Yes, one way or the other.

3452. If you had a very considerable reduction of loss, in consequence of the construction of a harbour of refuge, that would very quickly show itself in the saving to the shipowners of those ports from the smaller losses at sea?—I do not think that it would very quickly do it. Whatever the saving was they would feel the effect of it, and therefore as soon as ever there was a saving they would feel it. But I am not prepared to admit that it would very considerably do so till it was tested, in order to see the effect.

3453. It would be in proportion to the success of a harbour of refuge, and to the importance of a harbour of refuge upon that coast, that a reduction would be made in the insurance?—Yes.

3454. If there is to be this great saving of property, irrespective of life, do you think that it would be inequitable, looking to a public expenditure of money, that that particular interest, which indirectly saved some considerable portion of money by insurance, should be charged for the use of the harbour so constructed upon some equitable principle?—I do see objections to making a charge upon them without they make use of the harbour, because, although it is admitted to be a saving, a person may or may not take a harbour of refuge; he may say, I am not bound to do this, I think I am a cleverer sailor than other people, and I think I can get through without going into the harbour, but I am very unwilling to pay that tax whether I go into the harbour or not.

J. Cowen, Esq.

3 August 1857.

3455. You are a director of an insurance company on the Tyne?—Yes.

3456. When a person comes to you to be insured for the London voyage up and down from London you charge him a rate of insurance, not upon the calculation that he is lost, but upon the mere risk whether he be lost or not computed upon the average of losses for the year?—Yes.

3457. Then a person who sails in fine weather and is not lost pays precisely the same as a shipowner whose vessel is lost, supposing the vessels to be of the same character and style?—I hardly see exactly what the question leads to.

3458. When you charge your premium of insurance, your premium of insurance has reference to the whole number of ships that pass between London and Newcastle, and you calculate your premium of insurance with reference to the proportion of those ships that are lost?—Yes, just so.

3459. Those shipowners whose vessels are not lost, pay just the same as those whose vessels are lost?—Yes, certainly.

3460. Therefore, the whole question of insurance is one of average, and you receive a premium that will cover you for that in the course of the year?—Yes.

3461. Therefore, is it unfair to ask the shipowners whose vessels do not use the harbour of refuge, but which may use the harbour of refuge in case of need, to contribute towards their security placed there for their use, or do you think that it should be confined solely to those who are unfortunate at the time, and are compelled to use it?—I think it is unfair; I think you are going to make the shipowner pay for that which he says may or may not be of any use to him; but, in the insurance, he says, "I do make use of this, inasmuch as I do not leave the harbour till the vessel is insured." Having effected that insurance, he pays no more than the man who loses his vessel, but he has made use of the security of the insurance company, and that is a certainty, it is a fact; but it is no certainty and no fact that he will make use of the harbour of refuge.

3462. If a person insures his vessel in the Tyne for a voyage to London and back and has no loss whatever, he has purchased a security against the risk, but he obtains nothing from that. You have no loss, and he has no gain by having done it if he has no loss?—Certainly not.

3463. If a person pays a small toll for the construction of a harbour which he passes, if he happens to require the use of that harbour, it is of great advantage to him, but, if not, it is of no advantage to him?—Certainly.

3464. I think you stated that, in the construction of your own harbour, you thought it equitable to place a rate upon vessels leaving the Tyne for the purpose of paying for the cost of the harbour?—Yes.

3465. And you raise your funds exclusively from that source?—Yes.

3466. You proceed upon the principle, that those who use the harbour, and who have greater security hereafter in coming into the harbour and leaving it, will pay for the security so afforded to them?—Yes.

3467. Do you think that, if you proposed another plan, and said, that, as this is for the advantage of the port of Newcastle and Shields, it would be a fair thing to construct this harbour at the expense of the inhabitants from rates raised upon the general population, there would be an objection to that?—Yes.

3468. Do you think that the people would at once have said, "This is for the shipping interest, let them pay for it"?—Yes.

3469. If we are to construct a harbour of refuge at the public expense, do not you think that the public of the United Kingdom would say, If this harbour upon the east coast, which we admit to be very necessary and useful, is to be constructed for the benefit of the shipping, is not it fair that the shipping should pay for it, and that we, the farmers in Yorkshire, or in the north of Ireland, or anywhere else, should not be taxed?—I think it is very likely, and it is quite right; but it is equally right that these shipowners should not be taxed for what they receive no benefit from. You say, we lay on a tax in the Tyne. Undoubtedly we do, but the vessels have the benefit of coming in and going out of the harbour; but the case which you put is this, that the vessel shall pay whether she makes use of it or not.

3470. Would you confine your proposed toll, in the harbour of refuge, to the vessels entering the harbour of refuge and using it alone?—Yes.

3471. I thought you said, that a rule of that kind would deter captains from using the harbour at all?—Yes.

3472. If we are to create harbours of refuge, upon public considerations, should not we do so upon a principle which should induce the largest use of those harbours?

bours?—Yes, certainly; it would be right that it should be done upon a principle that it would be the most advantage to people to make use of it; and I think that you would find that the shipowners generally will tell you, When we make use of the harbour we will pay for it.

3473. They would also tell you that they would have no confidence in the captain making for the harbour if he had to pay for it?—Yes, I think so; and that if the captain had held on his course he could have run on to his port, and so saved it.

3474. And in consequence of that a great number of wrecks would ensue?—Very likely.

3475. And therefore the advantage of a harbour of refuge would be very much diminished?—If they will run the risk they ought to pay for it.

3476. Mr. *Augustus Smith.*] You stated that there had been a plan for carrying out those piers which might go into deep water?—Yes.

3477. Has there been any rough estimate as to the cost?—No.

3478. You seem to be well aware of the cost of those piers, and you spoke of the way in which the stone was brought from the quarries; do you know at what price per cubic yard the stone was deposited?—I cannot speak from my memory; I only recollect the gross sum, and the list of prices attached.

3479. Lord *Adolphus Vane Tempest.*] I think there is a little confusion with regard to the answers you have given with reference to the question of passing tolls; if I understand you rightly, you consider the shipping on that coast would not object to pay a toll when they used the harbour of refuge; but they would conceive it an injustice to pay a passing toll when they would have no occasion to use the harbour of refuge?—I think that they would object to pay any passing toll for a harbour they did not make use of; I say, that if they are to make use of it, it is equitable that they should pay for it; but I think it is an objection to making it a passing toll, that you will make everybody pay whether they use it or not.

3480. You conceive that the income, if leviable, should be upon ships making use of the harbour of refuge, and not a passing toll upon all ships?—Yes.

3481. Am I not right in supposing, that when the deputation of the Tyne Commissioners went to the Government you made a proposition of putting down a pound for every pound that the Government would assist you with?—Yes.

3482. And at the present time you would be very glad to make the same proposal?—Yes; I am speaking the sentiments of the Tyne Commissioners when I say so; we should be prepared to do it upon the principle that, when the harbour was made a harbour of refuge, it should be free for those ships.

3483. Looking to the money given to other harbours upon the coast by the Government, do you conceive that you would have a fair claim upon the Government to assist you with a proportionate amount towards the improvement of the harbour at the mouth of the Tyne?—We think so, because the harbour is capable of being improved at an expense less than any other harbour along the coast.

3484. Mr. *Philipps.*] In the ebb tide coming down the Tyne, at wha trate does it run; how many knots an hour?—That is a question that I cannot exactly answer; we have a flow at five hours and an ebb at seven hours.

3485. You do not exactly know?—No.

3486. Supposing these two piers were made, and the ebb tide was coming down at the rate of five knots an hour with a strong easterly gale blowing in, would it be a very safe anchorage?—Yes.

Mr. *John Robinson*, called in; and Examined.

3487. *Chairman.*] YOU are a practical Mariner, are you not?—I served an apprenticeship at sea, and was several years Captain of a ship.

3488. And you are now a Shipowner?—Yes.

3489. You have been in the habit of traversing the east coast of England?—Yes; I served my time in the coasting trade, and was 10 years in the coasting trade as a master.

3490. Have you been in the coal trade?—Yes; during the winter for 10 years I was in the coasting trade to London; the rest of the time I was generally in the Baltic.

3491. In the summer months you traded to the Baltic, and in the winter months to London?—Yes.

Mr. J. Robinson.

3 August 1857.

3492. You know the east coast very well?—Yes.

3493. What portion of that coast do you think the most dangerous between London and the Tyne?—The greatest danger is from Yarmouth to London; or rather from the Spurn, from the shoals and rocks. The greatest danger from the sea, where a refuge harbour would be requisite, is the exposed coast of the northern district; but as regards the navigation, the greatest danger is to the southwards.

3494. The most difficulty as to the navigation is to the southward, but the most danger is to the northward?—Yes.

3495. Where do the greatest number of wrecks occur?—I believe about the mouth of the Tyne, and that part of the north-east coast of England.

3496. Would you state that part of the coast which is most dangerous to be from Flamborough Head down to the Fern Islands?—Yes.

3497. The whole of that coast is very much exposed?—Yes.

3498. There is no good shelter for a vessel to run to?—None, except the Tyne.

3499. Are the harbours there all bar harbours?—Yes.

3500. The Tyne is a bar harbour?—Yes, it is a bar harbour, but it is the best and safest, and most easy of access in England.

3501. Good as it is, it is very insufficient as a harbour of refuge for vessels?—At low-water that is the case, but not at high water. The great bulk of vessels can get admission at high water.

3502. Do you know Tees' Bay?—Yes.

3503. Does that form a very good place for a harbour of refuge?—I do not think so.

3504. What is your objection to it?—I do not think that it has capacity for being made a harbour of refuge.

3505. By capacity do you mean space?—Yes, space inside. When the ships are inside of any harbour that could be made there, there would not be room for them to ride clear of the ground and of each others anchors.

3506. Would not that depend upon how far the piers were carried out into the sea?—Yes.

3507. Is not it a deeper natural bay upon that part of the coast than any other?—Yes, from somewhere about Sunderland Point to Whitby forms the bay.

3508. The deepest part of the bay is what is called Tees' Bay?—Yes.

3509. And it is very deep water, is not it?—That depends upon how far you go out. It is very shoal till you get a long way out, with Hartlepool Heugh bearing north-east, you have only 16 feet of water at low water.

3510. Do you know Sunderland?—Yes, perfectly well.

3511. Does the mouth of the river at Sunderland offer much facility for a harbour?—I think it might be very much improved; it is very bad at present.

3512. For the local trade it might be improved?—Yes, to facilitate the admission of the local trade.

3513. You have been very much connected with mutual insurance offices, have you not?—I have; I am one of the managers of one; it is managed by a committee.

3514. Is that in the Tyne?—Yes, at South Shields.

3515. Is your principle to contribute a sum annually, or for the losses as they occur?—Just as they occur.

3516. If a loss occurs, the shipowners who form the society are rated proportionately to make up that loss?—They are.

3517. And therefore it is exactly in proportion to the number of losses in any given year that you have to contribute towards those losses?—It is.

3518. Of course that contribution is in the nature of a charge upon your own trade?—Yes.

3519. In your current expenses if you reckon the value of the shipping or the profit that you make, you would necessarily deduct from the gains of the vessel the sums that you paid in reference to the losses that had occurred?—Yes.

3520. Therefore if you could diminish those losses very much it would be a distinct gain to those who are in the society?—It would, and to the shipowners.

3521. And the profits of your trade, as a shipowner, would be to that extent increased?—They would.

3522. Do you believe that a large number of the wrecks that now take place could be avoided by a good harbour of refuge?—I do not believe any very large number; I think they might be considerably diminished.

3523. What proportion of the wrecks that now take place do you think would be avoided by a good harbour of refuge?—Perhaps 25 per cent. of those that take place between the two points that we have named; it would not affect any others.

3524. From what causes do you consider the remaining 75 per cent. occur?—There is a number of them that would occur, let the harbour be ever so good, from awkward seamanship, or from the ship being disabled and unable to be managed when she enters the harbour; and then there are a number of wrecks occurring from collisions between those points, that is, collisions by mistakes and collisions by Act of Parliament.

3525. What do you mean by collisions by Act of Parliament?—The rules are so imperative; they are just the same as meeting on the road; and although if the ships never saw each other, they would run a great way clear, yet the law says, you must put your helm aport, however much you may be wrong, or any damage that ensues you will be liable for, and you have no recovery.

3526. There is a regulation that you must go on one side of the vessel?—Yes.

3527. In order to get on that side of the vessel, the vessels run against each other?—Yes, and frequently the manœuvre cannot be executed in consequence of being too near.

3528. Are you speaking of sailing vessels?—I am speaking of both steamers and sailing vessels.

3529. Do those collisions occur chiefly with sailing vessels?—They occur with both; but more particularly with sailing vessels.

3530. Do you think that if there were a harbour of refuge to which vessels could run in the event of a storm, that would affect some of those collisions?—No.

3531. Do you not think that vessels are kept out at sea that would go into a harbour of refuge if one were constructed?—I think it rarely happens that collisions occur from vessels being in an unmanageable state.

3532. Do you think that 75 per cent. of the collisions occur from circumstances that could not be prevented by a harbour of refuge?—I think so.

3533. Do you think that those other causes are being diminished by a better class of seamen and masters being employed than used to be the case?—As regards the coasting trade, our sailors are as good as they have been, and no better, and the same is the case with reference to the masters. As regards the foreign trade the masters are superior, but our coasting captains were the best coasters in the world always, and they are so still.

3534. Are you quite satisfied that the collier vessels in those rivers are always sufficiently manned, and always have a sufficiently good master put on board?—It is the endeavour of both the owner and every one else to have them efficient; but no doubt there are some cases where ships are not well manned; I may say that the mutual insurance companies appoint surveyors to see that proper stores are put on board, and also that the ship is not over-deeply laden; but there are cases where ships are not properly manned.

3535. This system of mutual insurance makes it the interest of all the shipowners to see that their neighbours are not careless in that respect?—Yes.

3536. And the companies appoint surveyors for that purpose?—Yes; and cases are frequently reported to us. We order the surveyor to examine into the case, and if we think that it is well founded we order the defects to be remedied.

3537. Would you object to a vessel going to sea with what you considered an inefficient master on board?—Yes; if a master is found to cause a loss improperly, we, immediately after examination into the case, send a circular to all the other insurance offices to say that we have come to a resolution that he cannot be employed for a certain time, or can never be employed, just as we think the case requires.

3538. You have known the coasting trade for many years?—Yes; all my life.

3539. Has there not been much improvement of late years in the care with which you see that vessels go properly found to sea?—I do not know that there has

Mr. J. Robinson.

3 August 1857.

has been very much improvement; but we do endeavour to have them as well found as possible. Ships in the coasting trade necessarily do not require the stores or materials that ships on long voyages do; consequently they are not so capable of contending with a continued storm as the foreign-going ships.

3540. It has been stated that very great and habitual carelessness has occurred in regard to the crews and the captains of collier ships generally; and I think one witness stated that he had known a case where a man who had been cook on one voyage was master on the next; does that practice prevail now?—I am not prepared to say that it does not; it does not follow that, because a man had been cook, he was not capable of being master.

3541. If he had been in no other capacity than cook would he be very likely to be able to manage a vessel?—I should say that, take it as a rule, you may go aboard 100 of our ships, and among those you would not find five men who could not take a ship from London to Shields.

3542. You mean that they would be sufficiently competent to trust the vessel to?—Yes; the only question would be as to character and conduct.

3543. The security of a ship is very much determined by the character of the captain, is not it?—Yes; that can be generally only determined after trial.

3544. Experience would show who were fit to be trusted and who were not?—Yes. Practically, many people have such a lax way of giving characters to persons that serve them, that you can rarely trust to a character till you have acquired a knowledge of the person yourself.

3545. What proportion of wrecks arise from collision?—I do not know; it is a rapidly increasing proportion; it has increased within these last three or four years very materially.

3546. The other great source would be, from vessels being disabled?—Yes.

3547. In consequence of bad weather?—Yes. The other source would be in taking the harbours; for, in the case of a harbour of refuge, if it is a mere harbour of refuge, place it where you will, the ships will all endeavour to go to the port either that they are bound to, or that they sailed from, as a matter of course.

3548. As long as there is a chance of getting to the port to which they are bound, they prefer that course to going out of their way to enter the harbour of refuge?—They will use every endeavour, and will even run some risk to do so.

3549. Although there was a harbour of refuge in Tees' Bay, a vessel running for the Tyne would prefer running some risk, in order to make the Tyne, than use the harbour of refuge at Tees' Bay?—Yes.

3550. You would be of opinion, in that case, that it would be much better to improve the existing harbours than to make an entirely new harbour?—I think decidedly so; and in doing so I would select, to begin with, the best, and where it would be most easily accomplished.

3551. What state of the wind is the worst on that coast, and is most apt to create wrecks?—With the wind at the south-east to east-south-east we have the most wrecks.

3552. That throws you direct upon the coast?—Not so much that it throws us direct upon the coast, as that, after a sudden change of wind, if the ships have been detained, they come in such a crowd together, and then, being detained at the entrance of the harbour, perhaps three or four hours, till the tide flows, they all come rushing in together, and that prevents the ships being properly managed in getting into the harbour.

3553. And, under those circumstances, they would not be likely to attempt to make for a harbour of refuge, if it was not at the port for which they were running?—No. With the wind at the east, unless it was a hurricane, they could choose the port; for the rule in the coasting trade is, when the wind is hauling out of the sea, to commence at an early period, and steer a point to the windward of their course, so that it gives them a position to bear down upon any point that they choose.

3554. Of course a captain managing a coasting vessel is always extremely anxious for his own reputation, and for the sake of the owner, to make as quick a passage for the port to which he is destined as possible?—Yes, and both captain and crew are paid by the voyage and not by time.

3555. And he is always disposed to run some risk for that object?—Yes.

3556. Therefore,

3556. Therefore, if taken in an easterly gale, a little to the northward of Tees Bay, he would not be very easily induced to turn back?—No.

3557. What portion of the vessels leaving the Tyne go northabout?—There is not a large proportion; I believe there used to be a larger proportion than there is now, because the ships bound to North America used to go out in ballast; now they frequently go south to Spain with coals, they rarely leave in ballast; and the Archangel trade is a considerable trade there, and the Baltic trade and the trade to those ports on the opposite coast, Hamburgh and Holland, Antwerp and that way, which is a very large trade now, and a rapidly increasing one.

3558. The Antwerp trade would go to the south?—Yes; but to Holland they go direct east.

3559. A very small portion of the trade would go along the north coast of Northumberland?—Not a large portion.

3560. Three-fourths of the trade would turn to the southward after getting out of the Tyne?—No; I think perhaps half, or two-thirds. Taking into consideration the Baltic, and Hamburgh, and Archangel, and all that trade, there is a very large trade. Then the United States' ships prefer going north generally.

3561. Do they go round the north coast of Scotland?—Very frequently they go north.

3562. Through the Pentland Firth?—Yes.

3563. Instead of going through the English Channel?—Yes; in consequence of the collisions becoming so serious.

3564. They pass Wick; and the Pentland Firth?—Yes.

3565. A very small portion of the trade of Sunderland would go northabout?—There is the same reason for its going northabout as there is with respect to the trade of the Tyne.

3566. Is not the Sunderland trade more exclusively a coal trade than the trade of the Tyne?—Not now, they are getting a considerable portion of the foreign trade in consequence of having made docks.

3567. They have a considerable Baltic trade?—Yes, they had always a considerable Baltic trade.

3568. And they have now some American trade, have they?—Yes.

3569. But taking all those ports, the Tyne, the Wear, and the Tees, the great bulk of their trade is to the south?—Yes, I should say more than a half.

3570. Is a north-east wind a dangerous wind on your coast?—It is not so much so as east-north-east to east-south-east.

3571. Vessels leaving the Tyne, going to the south, or going direct east for the Dutch ports, or south-east to the Belgian and French ports, with a north-east wind, of course could very easily make for a harbour in Tees' Bay?—Yes, they could.

3572. That would be their natural place to run to if there were a harbour there?—Yes, if they wanted to run; but the inference is, when a ship goes to sea with a north-east wind that she would be past there.

3573. Have you formed any opinion with a view to the nautical question with respect to ships that frequent those seas as to the best place for a harbour of refuge?—I think that the Tyne is the best; and I may state, as my reasons, that it has the largest internal capacity for the safe stowage of the ships.

3574. As it at present exists?—As it at present exists; all that is required is to increase the depth of water over the bar. That can be done to any amount at less cost by one-half than at any other place.

3575. What depth of water would you have in the proposed harbour now constructing?—About 15 to 18 feet at low water at the bar; for all the purposes of the trade that is practically sufficient. It is rare that a vessel is in such a position that she cannot lie for a couple or four hours, either to get more rapidly to the port before the tide is at the lowest, or delay her progress there so as to get the advantage of a foot or two at flow.

3576. What is the largest class of vessels that frequent the Tyne?—We have had some very large vessels there recently, as large as 1,500 tons.

3577. What trade is that?—They are generally Americans. We have had some very large Dutch ships.

3578. Are they engaged in general trade or the timber trade?—They are United States' ships trading to American ports.

3579. What water would a 1,500-ton vessel draw?—Some of them nearly 22 feet.

Mr. *J. Robinson.*

3 August 1857.

3580. They can only get in at high water?—They come in in ballast, and get in at any time at high water.

3581. Where do they discharge their cargoes?—They generally come from Antwerp or Belgium, and load with coals; when they go to sea they are generally above 20 feet.

3582. They cannot get out except at very high water?—Excepting at spring tides, and with a smooth sea.

3583. And for such vessels the harbour that is being constructed would be useless with 15 to 18 feet of water?—It would be accessible to them for half of each tide.

3584. At high water?—From half-flood to half-ebb.

3585. How high does the tide rise in that harbour, do you suppose?—About 15 to 15½ feet, ordinary spring tides.

3586. Upon the bar?—The rise and fall of the tide is about 15½ feet.

3587. How much higher is the water at high water than it is at low water?—In ordinary spring tides, 15 or 15½ feet.

3588. Then you would have 30-feet water at spring tides?—Yes.

3589. And how much at low water?—Fifteen.

3590. On the bar?—Yes; at half-tide we should have somewhere about 23.

3591. Is that the case now, or are you speaking prospectively of what is expected?—When the piers are carried out.

3592. What depth of water is there upon the bar at the present moment at low water?—About 7½ to 8 feet at spring tides.

3593. And, at the highest, what have you at spring tides?—Twenty-three or 24 feet; that is, the ordinary tide is about 23 feet; and at a very good spring tide we sometimes have 24.

3594. Do you expect to increase that by six or seven feet by the construction of these piers which are now proceeding?—All the engineers whom we have consulted upon the subject say so; and, from what we have seen in other places, we do anticipate that.

3595. There has been some increase already, has there not, upon the bar?—Yes.

3596. Do you suppose that is caused by the scour from the confinement of the stream?—Yes; the sand is going out a good deal, and it directs the current more directly upon the bar than it used to do.

3597. Mr. *Liddell.*] Is it not the case that there is a double action going on; that, in addition to the current, there is not so much sand gets in now as formerly?—Yes. Formerly there was a place called the Wheel; the tide, in running along the coast, came against the rocks, rebounded, and came in this wheel over the sands. In coming in, it carried a great deal of sand in with it. It has been said that, by filling a boat with water, and then baleing the water out, leaving the silt, the boat in a very short time might be filled with the sand held in suspension in that part. That is now stopped by the present pier; consequently, all that amount of sand is prevented coming in. The tide, too, has a better and more direct run upon the bar; consequently, it is improving daily.

3598. *Chairman.*] You have a very large Baltic trade, have you not?—A considerable Baltic trade.

3599. And a considerable trade to Hamburgh?—Yes.

3600. Is it chiefly done by vessels belonging to the Tyne?—All vessels; any ship that will take the lowest freight gets the job; it is immaterial.

3601. The ordinary size of the vessels frequenting the Tyne is from 200 to 400 tons, is not it?—Yes; I think the average is 155; nearly 156.

3602. What would you compute as the proper sum to reduce from your income from ships on account of the risk you run as being a member of this Mutual Insurance Company; is there any fixed amount that you would deduct?—I am not prepared to say what it is.

3603. Seasons vary much, of course; but is there no average in computing what the profits are; is there no particular per-centage that you put down for sea risk?—We do not put down any particular per-centage; but, in the coasting trade, with second class vessels, it varies from 10 to 12 per cent. upon the value of the vessel, and sometimes it gets as high as 18 or 20.

3604. Twelve and a half per cent. would be about the average upon the value of the shipping of the annual charge for risk?—Yes, in the coasting trade.

3605. If you were going to purchase a vessel, and reckoning the price you could

could afford to pay for her, if you were to make a calculation of the probable freights you could earn, you would make an allowance of 12½ per cent. for that risk?—Yes.

3606. Mr. *Philipps.*] You said, that these large ships that come in to load with coal for America go round by the Pentland Firth?—Yes, many of them.

3607. Do they chiefly take that course?—A great many of them do; they are not acquainted with the coast like our own people, and they prefer going that way to taking pilots or running the risk of collisions.

3608. In the course of your experience, as connected with insurance, you meet with a great many cases of collisions at sea?—Yes.

3609. Are those collisions in the day time or the night time chiefly?—Chiefly in the night, sometimes in the day.

3610. Do you find it is from the want of vessels showing lights?—Very rarely, I think.

3611. You do not often meet with that?—No, not where the collision is caused by that.

3612. You cannot detect that an accident has followed from the want of showing lights?—No; in fact some are caused by showing lights; the light is shown, and it blinds both the vessel approaching and the vessel showing it; it prevents the one ship seeing the course they are taking or the other ship seeing their course.

3613. You seem to think these harbours of refuge would not very materially alter the rate of insurance?—No, I think not.

3614. That is your own opinion, is it?—Yes.

3615. Mr. *Augustus Smith.*] You say that collisions have increased very much?—Yes.

3616. Wrecks have not increased, have they?—I am not prepared to say whether they have increased in proportion to the increasing trade.

3617. The tables published show that the wrecks have remained stationary, and that the collisions have very much increased; and as the collisions are accounted for by there being an increased number of vessels, I wanted to know why the number of wrecks has not also increased?—I do not know the cause; it may be from having a superior class of vessels.

3618. Would there not be a better look out, in consequence of there being a better class of navigators, and therefore fewer collisions?—I think collisions occur as often from mistakes as from the want of look-out.

3619. You think that, through there being certain regulations as to putting up lights, parties trust to that, and do not keep the look-out they otherwise would?—It is so sometimes.

3620. So that collisions occur through the regulations to prevent them?—Yes; the law says that a ship on the starboard tack must keep her course: the practical effect, in many instances, is for them not to keep such a look-out as they would otherwise do; they leave the onus upon the ship upon the port tack, which is bound to keep out of their way.

3621. You spoke also of there being a number of collisions between sailing vessels and steamers; do you think, under any circumstances, there ought to be such a thing as a collision between sailing vessels and steamers?—I am not prepared to say that there ought never to be any; but I think they might be much diminished, and that there ought not to be so many as there are.

3622. Whose fault would a collision be under those circumstances?—The steamer has the greatest speed, and the greater power of either backing or filling, consequently she is better able to get out of the way than the sailing vessel.

3623. On a wide sea?—On a wide sea.

3624. Is it your opinion that a steamer ought almost always to be able to get out of the way of a sailing vessel?—Generally, except in very thick weather.

3625. As far as the cases of which you have knowledge go, has it been generally the fault of the steamer or of the sailing vessel?—I think in most cases we have gone to court we have recovered from the steamers.

3626. Do you find that the coasting vessels are worse manned than they were a few years back?—No, I do not know that they are; they are a different class of vessels, and can be managed with fewer hands.

3627. Did not the coasters depend, upon the east coast, very much formerly upon their apprentices?—They did:

Mr. *J. Robinson.*

3 August 1857.

3628. Do you think that doing away with apprentices was a relief or not to the shipping interest?—I think it was in some measure; the number was too large, and it was inconvenient in this way, that when your ship was ready for sea, one or two of your boys would run, and you could not go to sea without the legal number; you picked up any vagabond you could, and gave him more wages than your other apprentices, and he spoiled all the rest on the voyage; that was a great objection, and it got to be such a system of annoyance, that we were glad to be rid of it.

3629. Do you think the system of apprenticeship trained a good number of sailors or not?—It was so; and it kept them constantly in one ship in one employ for a number of years, instead of going about from one to another, as now, and all the time in their youth, when they are hardly fit to be without restraint, they are led into evil; but when kept with their ship they had not that opportunity.

3630. Are you now at a loss in getting those thorough sailors that you had formerly?—In some respects they are not so good as they were, but I do not know that there is much difference; it is more in the character, in the case of some of the men that go foreign, than anything else.

3631. The dismissal of masters was alluded to just now; it is usual, you say, to give notice to the insurance companies; when the owners have done that, through misconduct, do you think that has made the class of masters better?—It has had a good effect.

3632. Do you think it has been more from that, or from the regulations laid down by the Board of Trade as to certificates?—That merely applies to the foreign trade; but what I was speaking about was the coasting trade solely.

3633. You do not do it with reference to the foreign trade?—No.

3634. You stated that there was only 16 feet water at Hartlepool; at what distance did you mean that from Hartlepool Point?—With the lighthouse on the heugh, bearing north-east or north-east by north, there is 16 feet at low water, which leaves a small area outside of that.

3635. You are speaking with reference to the plan of the harbour?—I am speaking of the bay of Hartlepool; a large amount of that acreage must be taken off, because that far out there is only 16 feet water.

3636. As to what distance would you describe it, either from the headland or the rocks south of Hartlepool?—I cannot from memory, but I can explain it upon the chart; at the entrance of that proposed plan there is laid down upon the map 30 feet of water.

3637. Lord *John Hay.*] What are the regulations which cause collisions?—The regulation is that, when there is a danger of vessels approaching, under all circumstances they must put the helm aport, and a vessel not having put the helm aport, although she may have done that which would tend rather to avoid the collision, still is liable for all the consequences, and could not recover a halfpenny.

3638. Do you mean in cases where vessels are running under sail, both the same way?—No; meeting opposite each other.

3639. That is, with the wind abeam?—With the wind anywhere. Supposing two vessels meeting, with the wind free, or two vessels meeting in this way (*describing the same*), those two vessels, left to themselves, would very probably go clear of each other. If there was some degree of option to follow their own responsibility, many of the collisions would be avoided.

3640. What you have described is the practice of those captains in the coasting trade who are such good seamen?—They all know what the law is, and they endeavour to act up to it.

3641. And what you have stated you conceive to be the law?—Yes, it is the law.

3642. With regard to other matters, in passing upon opposite tacks, do you consider that a bad regulation?—No; I think it is a very good regulation.

3643. Do you conceive that none of the large number of wrecks that we see have occurred off Newcastle might have been saved, supposing a harbour of refuge had been constructed at Hartlepool?—No; I think the great bulk (and I can show here, that on the 4th of January 1854, the gale which has been so much alluded to was a gale from the south-east) ran for the ports they were bound to. If there had been a good harbour of refuge at the Tyne, I have no doubt the bulk of them might have been saved; if there had been a harbour of refuge at Hartlepool, it might have saved the ships wrecked at Hartlepool, but it could have had no effect upon any of the others.

3644. Are you aware that the gale of 1854 is stated to have been from the eastward?—I have here a return from the Admiralty, and it is stated to have been south-east.

3645. Who gave in that return?—I do not know; it was compiled under the authority of the Admiralty.

3646. The Committee have a return from the Admiralty also, which states that the wind was from the eastward?—Eastward includes south-east; there is the "Antelope," of Shields, south-east; on January the 4th the "Ann," of Shields, wind south-east; the "Amphitrite," south-east; the "John Murray," south-east.

3647. Do you not consider that the loss in the vessels off Newcastle was very likely, in consequence of the vessels becoming embayed, and trying to get to the northward to sea, and that they went on shore at Newcastle in this easterly gale?—No, none of those ships were embayed.

3648. How were they lost?—In trying to run into the harbour.

3649. Were they lost because they required a harbour of refuge, or merely because they were attempting to go into the Tyne when there was not sufficient water, and there was too much sea upon the bar?—I do not think it was on account of the insufficiency of the water; in fact, a number of the vessels did go to the Leith Roads.

3650. Then you are of opinion that a large proportion of those vessels lost off Newcastle might have been saved by keeping to sea?—They might have been.

3651. It was not necessary, in fact, to go into a harbour?—No; they were bound there, or to escape the gale they went there.

3652. You are aware that the coast by Newcastle is straight, and therefore it is easier for a vessel to get off the coast than in the embayed portion, which is further to the southward?—When a ship is there, she can easier get off the coast, provided she is not too close in.

3653. Under those considerations, are you not of opinion that a harbour of refuge is more required in the embayed portion of the coast, that is nearer Hartlepool?—The Tyne forms a part of the embayed coast; it is nearly the centre. Hartlepool is the most dangerous portion on the coast; but no harbour that you could make in Hartlepool Bay would hold a tithe of the ships.

3654. Lord *Adolphus Vane Tempest.*] I believe your view is, that money would be better expended in increasing the present tidal harbours than in forming any new work?—Decidedly.

3655. In your evidence you alluded more especially to the Tyne; but, I presume, if the money was granted it could be equally well spent in improving the other tidal harbours?—Yes, it might be spent with benefit to improve the other harbours, but not equally well.

3656. Are you acquainted with Sunderland and the Wear?—Yes.

3657. With an expenditure of money the accommodation of the Wear might be very much improved?—It might be considerably improved.

3658. Can you state the difference between the amount of water at low tide across the Wear and the Tyne?—I believe it is about three feet.

3659. Is not the Tyne six feet, and the Wear four, at low water?—The Tyne is now about 8 feet, 7 ½ to 8 feet at low water.

3660. Since when has the water increased?—It has been gradually increasing, but I do not think we have had less than 7 ½ to 8 feet for the last six months.

3661. What is the amount of water at low water at the Wear?—I believe about four feet.

3662. Mr. *Liddell.*] In your opinion would a harbour of refuge at Hartlepool, or a harbour of refuge at some point not named between the Tyne and the Wear, be most valuable for the shipping that frequents that coast?—Decidedly a harbour in the Tyne would be the best.

3663. Will you state the grounds upon which you assert that?—I have already stated that it has the largest internal capacity for stowage of any port in the kingdom, where the greatest number of ships can lie and take refuge in the greatest safety; it is the best and the safest harbour inside; the entrance could be increased to any amount of water at a less cost than any other port; it is the port best known in ordinary and fine weather to all the shipping that frequent the coast; consequently, when they are obliged to run for it in a hurricane or a gale of wind, they have not first to make its acquaintance; they know all about it, and what dangers they have to encounter, and therefore they prepare for them; but, in

Mr. *J. Robinson.*

3 August 1857.

the case of a place that is comparatively little used, in rushing for it, and expecting to go readily in, in a gale of wind or a snow storm, they know nothing of it till they are against the pier-heads, and either lose their ships, or sink some others in going into the harbour. And another advantage that the Tyne has, is this, that the harbour itself is a considerable distance from the bar; that a ship coming in with a large press of sail to get safely inside, has plenty of time afterwards to take her sails in and moor the ship comfortably without difficulty.

3664. And she has the additional advantage of not being compelled to bring up with her anchors?—Yes, and we are now making improvements which will enable us to take all the trading vessels out of the harbour, and leave it entirely for refuge if required. The ships occupying the present room could be, if required, entirely accommodated by the docks, which are now making.

3665. Do you concur with Mr. Calver in the opinion which he expressed very broadly and very decidedly, that refuge is not wanted in a gale from the south-east?—I think a good harbour is more wanted in a south-east gale than any other. The ships coming in in such numbers as they do frequently, in the east and south-east winds, all come rushing one upon the other, and, unless there is plenty of capacity inside, they are very likely to do very serious injury; and one-half of the damage that arose in the Tyne in the January gale was from one ship rushing on the other in a short time; and a still larger proportion at Sunderland; and I believe it was almost exclusively at Hartlepool: the first two or three ships blocked up the entrance and the others came on to them.

3666. You say that the ships come in large convoys together in ballast, as light vessels; they are, in fact, return fleets to the Tyne?—Yes.

3667. What is the largest number that you have seen returning together in the Tyne?—I do not know; I have seen the sea black with them when coming in; I could not say the amount, perhaps 500 or 600 sail.

3668. Supposing that one of those fleets of light vessels was caught in a south-easterly gale to the northward of Hartlepool, would it be possible for one of those vessels to make that harbour?—No, they could not get to it.

3669. Do you know of any works that are in progress at Hartlepool now, or that have been in progress for the last two years?—None. They finished an old contract, but they have done none under the present Act.

3670. Do you apprehend any injury to the harbour of Hartlepool from the absence or want of scouring power?—I apprehend a great deal; and I know that at present, outside the bar, there is a considerable silt, to the extent of about 18 inches.

3671. Do you know whether the amount of silt to which that harbour is liable is larger or less than upon other parts of the coast?—I do not know.

3672. Are there not about 20,000 ships that sight the Fern Lights annually going to and from the Scotch ports?—I do not know; I cannot state that; it is quite possible that there might be: a considerable number of the ships coming from the Humber pass there.

3673 You have stated that a north-easterly wind is not a very dangerous wind upon that part of the coast; will you state the reason why?—A ship can proceed upon her course to the south in that wind. Light ships cannot get down that far, except a few, which get directly opposite: the loaded ships can all run their course south.

3674. Lord *Adolphus Vane Tempest.*] Have you looked at the Wreck-chart?—Yes.

3675. Is not it the case that the largest number of wrecks occurred south of the Tyne?—I think that as large a number occurred at the Tyne as anywhere else.

3676. In the event of increased harbour accommodation at the Tyne, that would not afford safety accommodation to those ships that may hereafter be lost to the south of the Tyne?—There is nothing to prevent them taking the Tyne as well, Hartlepool, or any other place.

3677. Sir *Frederick Smith.*] You led the Committee to suppose that the water at the mouth of the Tyne contained a great quantity of sand in suspension?—It did formerly; there is not so much now.

3678. What prevents it?—The projecting of this pier intercepts it where it passed over the bar.

3679. Will not the sand tend to silt up behind the pier which is now forming?—I have no doubt that a portion will.

3680. And

Mr. *J. Robinson.*

3 August 1857.

3680. And tend to fill up the harbour very rapidly?—No, the harbour is above that.

3681. But the harbour of refuge will be behind these piers?—No, it will not.

3682. What is the use of these piers?—To enable ships of a larger draught of water to cross the bar.

3683. What accommodation will you have in anchorage for vessels of a large tonnage?—At present we can stow from 1,200 to 1,400 ships, and we are making accommodation for about 600 to 800 more.

3684. *Chairman.*] You have no doubt whatever that a harbour of refuge is required upon the north-east coast of England?—None whatever.

3685. Do you think that the best plan, amongst all these conflicting opinions, would be to appoint a competent commission for the purpose of selecting the best spot at which such a harbour of refuge should be constructed?—I do think so.

Mercurii, 5° die Augusti, 1857.

MEMBERS PRESENT.

Mr. Clay.	Mr. Macartney.
Mr. Ewart.	Mr. Philipps.
Mr. J. H. Gurney.	Sir Frederick Smith.
Lord John Hay.	Mr. Augustus Smith.
Mr. Kendall.	Lord Adolphus Vane Tempest.
Mr. Liddell.	Mr. Wilson.

JAMES WILSON, Esq., IN THE CHAIR.

Mr. *Thomas Boyes Simey*, called in; and Examined.

Mr. *T. B. Simey.*

5 August 1857.

3686. *Chairman.*] WHAT are you?—I am at present principal Surveyor of Shipping at Sunderland, and have been in command of a ship upon the coast for some time formerly; I know the locality well.

3687. Are there many wrecks in the neighbourhood of Sunderland?—There are wrecks every winter, and frequently loss of life.

3688. What is the most dangerous wind at Sunderland?—The winds from the east of north-east to east-south-east.

3689. You have a very good harbour for the trade of the port?—A spirited company has made a very excellent dock, with an outlet to the sea, with very much increased draught of water to what we used to have over the old bar.

3690. Is there a bar at the mouth of the Wear?—There is.

3691. Have you any works outside that bar?—None.

3692. Do you contemplate making any?—Not at present, that I am aware of.

3693. Is it your opinion that it would be easy to make works outside the bar, so as to make a harbour outside?—They might run piers off from the north and south to encircle some water and improve the place; but it would never answer as a harbour of refuge; ships of more draught of water would be able to go in than now, but it would never answer as a harbour of refuge; it is too shoal.

3694. Independently of the local trade of the port of Sunderland, there is no particular facility for constituting a harbour of refuge outside the bar?—There is, in a place called Hendon Bay, a little south of the present sea outlet from the dock; the best plan that I have seen for a harbour of refuge is propounded by Mr. Murray, civil engineer, across two shoals that lie in the face of Hendon Bay, and which would encircle a great deal of water, leaving two clear openings, one from the south and the other from the north; in the inside of which ships could come at all times of the tide, and bring up and anchor in safety.

3695. Do you know the coast from Flamborough Head to the Fern Islands?—Yes, well.

3696. The whole of it?—The whole of it.

3697. Do you think that the point you have named now, taking the whole of

Mr. *T. B. Simey.*

5 August 1857.

that coast, would be the best place for a harbour of refuge?—I do; it is centrally situated.

3698. The trade of Sunderland is not so large as the trade of the Tyne, is it?—It is not so large. We are the largest ship building port in the kingdom. The staple article of trade is coals, and next ship building. I suppose that we are the largest port for ship building, next to New York, in the world.

3699. Your trade is chiefly coasting?—There is a good deal of foreign trade in coals and wood, but the majority is coasting. (*The Witness exhibited Mr. Murray's plan, and explained it to the Committee.*)

3700. Lord *Adolphus Vane Tempest.*] You are extensively connected with the shipping trade of Sunderland?—Yes.

3701. Is it your opinion that there ought to be increased harbour accommodation for refuge on that coast?—There ought to be a harbour of refuge for the purpose of saving life, and property with it of course; it is the general feeling along the whole sea board that some harbour of refuge should be made to save life and property in gales of wind from the eastward in the winter time.

3702. Have you turned your attention to the question, as to whether it would be advisable, in increasing the accommodation, to expend money upon the existing tidal harbours, or to construct a new work?—That would be more an engineer's question, which I am not prepared to give an answer to, perhaps; but, if we could get a bold comprehensive harbour of refuge made, so that ships could come in at any time of the tide, and bring up and take shelter, that is the best plan to pursue.

3703. Have you turned your attention to what will be the cost of this work should it be constructed there?—Yes. This plan, which I have just now shown, appears to me, as a sailor, to be the best plan that I have seen yet.

3704. Do you know what the estimated cost of that work was?—£. 850,000.

3705. Is it your opinion that, in the event of the Committee coming to a decision, that some increased refuge accommodation is necessary upon that coast, the best means would be to issue a commission to investigate upon the spot, and to decide as to the locality?—Most certainly, providing the commission is formed of practical nautical men, with engineers.

3706. Do you think that the commission ought to be constituted of nautical men and practical engineers?—Yes, first, as to the choice of a site; and then as to its engineering capabilities for making a harbour of refuge.

3707. And you consider that a commission, formed upon that principle, would be the most advisable means of finally settling upon any site for increasing the refuge accommodation?—I do.

3708. Have you turned your attention to the question as to the mode in which the revenue should be derived from any harbour of refuge, as to whether it should be by tolls or not?—I think a charge on every ship that takes shelter in a harbour of refuge would be very fair, and I think that is the only toll which you could possibly get, or expect to get.

3709. You would levy toll only upon those ships that use the harbour of refuge on their using it?—Yes.

3710. And you would not have a regular passing toll?—No, a passing toll would not be borne now.

3711. You think that there is a great objection, on the part of the shipping interest, to a passing toll?—Yes, very great; if a harbour of refuge is made, it should be a national one, upon the broad national principle of doing public service.

3712. Do you think that there would be any objection to ships paying that used it?—Not at all.

3713. I believe the trade of Sunderland is immensely increasing yearly?—Yes, both the trade and magnitude of the town have much increased since we opened the south dock.

3714. And very large works have been made there lately for the increase of the harbour?—Yes.

3715. Is there any proposition with regard to improving the entrance of the Wear?—I have heard it mooted that they have some idea of running breakwaters off from the north and south side to encircle a little more water; but I am afraid that their want of funds will prevent their doing it; and, if it was done, it would never operate as a harbour of refuge; it would improve the old bar a little.

3716. I mean with regard to improving the entrance to the river?—It would make it better than it is now.

3717. What

3717. What depth of water could you obtain at the mouth of the Wear by improvements?—We have about four to six feet at low water. If the bar was carried further out, we might get, perhaps, four feet more, but that is merely ideal; I do not give it as a decided opinion.

3718. You think there should be some increased harbour of refuge made on that coast, and that the site could be better decided upon by a commission sitting on the spot to take evidence?—Yes, precisely so.

3719. *Mr. Liddell.*] What is the area that you expect to include by the proposed works, as marked upon Mr. Murray's plan?—The area proposed to be inclosed by Mr. Murray's plan is from 600 to 700 acres, of which 300 acres will have a maximum depth of five fathoms at low water. We have a flow of about 14 feet in ordinary spring tides, and about 10 feet in neaps; but they vary very much according to the state of the wind and its direction.

3720. Is the sea much charged with gravel and sand in the neighbourhood of the Wear?—We have a good deal of sand coming into the harbour at times.

3721. From what point is the flow of the sand the most extensive?—We are of opinion that it comes out of Whitburn Bay; that is to the northward.

3722. Have you ever calculated what might be the effect of that smaller inner breakwater upon the entrance to your present dock, in connexion with that flow of sand?—I do not think it would be any injury to it, but if it was likely to prove so it could be dispensed with altogether; it is not absolutely necessary to have that inner breakwater there.

3723. Then what is the particular object of that inner breakwater?—I cannot exactly tell you why Mr. Murray has placed it there; but the outer breakwater is quite sufficient to protect the ships from the rising of the sea with a wind from the eastward.

3724. In a strong south-easterly wind would there not be a danger of a heavy sea setting in at that southerly entrance as proposed upon that plan?—No, if you had maps sufficiently large to show you the trend of the coast you would find that it would not have any effect; besides, the sea never comes along the shore, it comes always in parallel upon it, and the ships in the proposed harbour would merely roll at their anchor, and not pitch to do any harm.

3725. Is the nature of the ground very good holding ground?—Yes; very good holding ground; it is chiefly sand. It was very much used before the south entrance was made for ships to anchor and wait tide with the wind to the southward.

3726. You say that that was extensively used formerly?—Yes; ships used to bring up there to cast their ballast to the southward of the harbour. I have seen as many as 150 sail of ships at one time.

3727. To what parts did they belong?—They were all bound to Sunderland, coming in together.

3728. Mr. *J. H. Gurney.*] I think you stated that you considered there would be no objection upon the part of the shipowners that the vessel should pay a certain toll when they made use of the harbour of refuge?—I think not.

3729. Do you think that the liability to pay such a toll would tend to prevent the masters of vessels taking advantage of the harbour when they otherwise would?—Not at all. They would be very glad to get in in a gale of wind.

3730. And the owners of vessels would not, by blaming them afterwards, be likely to prevent it in future?—No; the amount would not be great any how.

3731. Mr. *Augustus Smith.*] What is the depth of water which you think would be obtained within this breakwater at low water?—We expect that there will be 300 acres which will have a depth of five fathoms at low water, and the whole area inclosed will be from 600 to 700 acres; and further in there will be a little less water, perhaps, as you go towards the shore up to 20 feet; but the 600 to 700 acres will be from 20 feet to five fathoms.

3732. You are not aware of the nature of the ground under the sand?—No; but I think it is all good anchorage in there.

3733. It was used formerly as an anchorage?—Yes.

3734. There was some particular term, was not there?—Yes; "Huffin Smooth."

3735. Mr. *Philipps.*] There are corporations at Hartlepool, Newcastle, and Sunderland?—Yes.

Mr. *T. B. Simey.*

5 August 1857.

3736. You say that at Sunderland the outlay would be about 850,000 *l.* ?—Yes.

3737. Would there be any objection on the part of the corporations in those districts, if the Government advanced the money to make harbours of refuge, to guarantee the repayment of that money in the course of 20 years, or over a period of years ?—I do not think the corporations would have anything to do with it as corporate bodies.

3738. Are there any corporate bodies that would have anything to do with a guarantee of that kind in those three towns ?—In Sunderland we have Commissioners of the River Wear, who have a revenue by Act of Parliament, with about 16,000 *l.* a year; but I am not aware that they would make themselves liable to the Government for an affair of this sort.

3739. They would not think that sufficient benefit would accrue to themselves ?—Not to themselves, certainly. A harbour of refuge is intended for the whole trade of the east coast, without reference to Sunderland alone.

3740. Of course it would benefit the town ?—Having a harbour already made by a private company, it will not be of any very great benefit. It will be of some benefit, inasmuch as it will keep the sea off the south entrance.

3741. You do not think that it would be any great local benefit to yourselves at Sunderland to have a harbour of refuge ?—It would be some, but not particularly; not so much, now that we have the south dock and an outlet to the sea, as it would have been before.

3742. Do you think that the principle is unjust of a corporate body guaranteeing a debt of that nature to be repaid in the course of years ?—I can hardly answer that question.

3743. Such a plan is in existence in some ports of England, is not it ?—If the corporation were conservators of the river they might then take it upon them, but I do not think that, in their capacity as merely conservators of the town alone, they would undertake a thing of the sort.

3744. But such a plan does exist in some ports of England ?—I am not aware.

3745. Does not it exist at Bristol ?—I do not know. It is a very old corporation at Bristol, and they have very peculiar privileges and immunities there that I do not know anything about.

3746. Lord *John Hay.*] I should like to know whether you consider that a harbour of refuge placed near Sunderland would be a greater benefit to the whole trade upon that coast than if it were placed at any other point ?—It strikes me that it would be very well situated for the general trade between the Staple and the Fern Islands and Flamborough Head. As a sailor, I should say that it is well situated.

3747. In exercising your profession as a sailor, has your experience been confined principally to this coast ?—I have been a good deal upon it, but certainly not altogether.

3748. Do you consider it the most dangerous point upon the coast ?—No; there is no particular danger on the coast; the danger is only from vessels being overtaken by a heavy gale of wind, and not being able to clear the land on either tack.

3749. There is one particular part of the coast more than another which it is more unsafe for a vessel to be off in a gale of wind ?—If they were caught down in the bottom of the bay in a heavy gale of wind they would be more dangerously situated there than they would be in a greater offing.

3750. Do you think that you would select that portion of the coast to place a harbour of refuge upon which was a part of the coast from which vessels, when caught near it, might more easily get to sea, as compared with other portions of the coast ?—Yes; it strikes me that Mr. Murray's plan is the best that I have seen, and one that I would support to the utmost of my power.

3751. Do you consider that a harbour of refuge ought to be placed upon that part of the coast which was, as compared with others, easy to get off during a gale of wind, or would you be inclined to place a harbour of refuge on that part of the coast where it was most difficult for vessels caught there to get off the shore ?—Yes; it would be more difficult for vessels to get off the shore if they were down at the bottom of the bight.

3752. Would you be inclined to place a harbour of refuge upon that portion of the coast upon which it was easy to get off, as compared with other portions of the

the coast; would you not be inclined to place a harbour of refuge upon that portion of the coast where, when vessels were caught in the vicinity, it would be almost impossible to get off with the wind blowing on shore?—I would select this (*pointing to Mr. Murray's plan*); this is the bottom of the bay almost; and if you draw a line from the Staple to Hartlepool Bay, you will find that Sunderland is almost at the bottom of the bay.

3753. A vessel would have less chance there?—Yes, more to the northward or southward, as the wind might prove.

3754. Would you consider that vessels caught off Hartlepool would be in a better position on the coast for the purposes of getting off, than if caught off Sunderland?—Very little, if any; it would depend a great deal upon how the wind was. If the wind was from the east-south-east they would be better off at Hartlepool, if the wind was east-north-east, which is the quarter where the worst gales come from, they might be in a better position off Sunderland.

3755. Supposing the wind was from the eastward, do you think that a vessel would get off Hartlepool under circumstances, when she might get off Sunderland, if she had a little offing?—No, not with the wind blowing a heavy gale from the east, she would have as bad a chance there as she would at Sunderland.

3756. Would she have a worse chance?—I do not think she would.

3757. Which has the advantage?—I should say Hartlepool, being a little more to windward; it lies a little more to the eastward; she would have a little better chance there, if there is any difference.

3758. With the wind at the east?—With the wind at the east.

3759. What course would a vessel make in that case?—She would only lie north-north-east by the compass, and with a heavy gale of wind she would make six points lee-way, that would be something like a north-west course, with the heave of the sea, and not being able to carry much sail.

3760. The gales generally begin to the south-east, and go round to the northward, do they not?—Sometimes north-east, and sometimes they begin at east-south-east, it is impossible to say how they begin; they begin variously, and they sometimes come on very suddenly.

3761. Did not the heaviest gales that you remember upon that coast, and those which produced the greatest amount of disaster to shipping, begin at the south-east and go round to north-east?—No, I can not say they did.

3762. Have not the gales which have done most harm been from the eastward?—Yes, always.

3763. And have they not generally risen to the south of east and gone round to the north of east?—No; sometimes a gale of wind rises at north-east, and sometimes east direct, and sometimes at south-south-east, it is quite uncertain.

3764. A number of witnesses have, I think, given evidence to this effect, that the gales which have caused the greatest disasters upon this coast have risen to the south of east, and gone round in that way to the north?—That does happen sometimes, but it is not the general rule.

3765. I mean with reference to the heaviest ones, of which we have records in reports?—No, I cannot say that they do.

3666. Supposing that a gale had arisen in that way a little to the southward of east, and gone round to the northward of east, do you think that vessels that were off Hartlepool would not be in a more dangerous position after the wind had gone round a little to the north of east, than vessels which were off Sunderland?—No, there would be very little difference. If a ship was off Hartlepool with a gale of wind from east-south-east, and her head lying to the north, and the wind was to vere round to the northwards afterwards, she might then go round Flamborough Head on the port tack, but that entirely depends upon the intensity of the gale, and what way the ship is making.

3767. If you were to know that the wind having arisen to the south of east was likely to go round to the north of east, if you had to select a position on the coast, where you would like your vessel to be; would you not prefer to be, under those circumstances, off Sunderland rather than off Hartlepool?—The difference is very trifling.

3768. Do you admit that, supposing the wind had been from the southward of east, and two vessels, the one from Hartlepool and the other off Sunderland, had started at the same time upon the starboard tack; supposing that they went at the same speed when the wind vered round to the northward of east, the vessel which started off Sunderland would be considerably to windward of the vessel

Mr. *T. B. Simey.*

5 August 1857.

which started off Hartlepool; with reference to the shore which lies to the southward of Hartlepool, that she would have to clear when on the port tack?—She would be, inasmuch as she would be a long way to the north of the other one, and then when the wind shifted to the north-east she would be that much further to windward.

3769. Lord *Adolphus Vane Tempest.*] What is the length of the breakwaters as proposed by Mr. Murray's plan?—Nearly 10,000 feet.

3770. Mr. *Augustus Smith.*] Are there any facilities for procuring material on the shores in the neighbourhood for constructing a breakwater?—Yes, very considerable.

3771. Of what nature?—We have some very high limestone rocks a little to the south, towards Seaham, from which a very large proportion of the material could be got.

3772. Mr. *Liddell.*] You have stated that the cost of these works will be 850,000 *l.*?—Yes.

3773. Upon what calculation is that based?—I do not know; it is an engineer's calculation.

3774. Who was the engineer?—Mr. Murray.

3775. You know nothing further of your own knowledge?—No.

3776. I wish to call you attention to a question that was asked of Mr. Calver; do you know the locality of Hartlepool?—Yes, I know Hartlepool Bay.

3777. In referring to the breakwaters proposed to be constructed there, Mr. Calver is asked, whether the whole space of the bay would not be open to the south-east; and he says, "Yes, but then refuge is not required from the south-east." Does your naval experience bear out Mr. Calver in that statement?—No, it does not. In heavy gales of wind from the south-east a ship will not contend with it; she would go into a place of refuge if she could get.

3778. We know that these colliers go in fleets of light vessels; supposing that one of those fleets was caught to the northward of Hartlepool in one of those south-easterly gales, would any one of those vessels make the harbour of Hartlepool if it existed?—If caught to the northward of Hartlepool they could not get there; with a south-east wind they must run for Sunderland or Shields.

3779. Lord *John Hay.*] Is there any harbour on that coast between Flamborough Head and the Fern Islands where, in time of war, a steamer could with certainty go in for coal if stationed off that coast during any weather?—There is none at present; but we are of opinion that within this breakwater (*pointing to Mr Murray's plan*) men-of-war would be able to come in and coal and take refuge there.

3780. There is no single harbour upon the coast where a man-of-war could coal upon that coast?—Men-of-war, of moderate draught, have gone into the Tyne and lain there. We shall have about 24 feet into the entrance of our docks when they are completed, and that is about the largest draught of any port along the coast between Flamborough Head and the Fern Islands.

3781. There is no harbour on that coast to which, during bad weather, a man-of-war could with certainty resort for the purpose of coaling?—Not at present.

Mr. *Charles Alcock*, called in; and Examined.

Mr. *C. Alcock.*

3782. Mr. *Liddell.*] YOU are connected with Sunderland, I believe?—Yes.

3783. Will you state in what capacity?—I am Chairman of the Shipowners' Society in one capacity.

3784. Are you able to speak to the extent and importance of the trade of that locality?—Yes, in full.

3785. Your attention, I suppose, has been called to the importance, and almost the necessity, I may say, of some refuge being afforded upon the north-east coast to the shipping so extensively engaged upon that coast?—Yes; for many years it has been discussed among seafaring men at Sunderland, that there ought to be a harbour of refuge constructed.

3786. Have any memorials been submitted to the Government upon that subject?—Not that I recollect; except that I proposed a memorial last year, but it

was

was never got up; the seamen of the port of Sunderland were rather ahead of the masters, and memorialised the Government last year.

3787. Are you able to speak to the plan laid before the Committee this morning?—I am fully, for I happened to be the chairman of a large meeting of shipowners when it was presented by Mr. Murray to them, and I think, without any dissenting voice, the whole of them were in favour of it; there are two plans for harbours of refuge at Sunderland; one is called Mr. Meek's.

3788. Is Mr. Murray a local engineer?—Mr. Murray is the engineer for the docks; Mr. Meek is the engineer for the river. Mr. Meek has had a plan for many years, perhaps I may say 10 years, to construct the harbour of Sunderland into a harbour of refuge, that is, to carry jetties or piers right round in a circle from Whitburn Bay, and on the other side from the docks.

3789. Do you know what the nature of the sand banks is which have been shown to the Committee to exist, and upon which the outer breakwaters are to be formed on Mr. Murray's plan?—That is rock; it is not sand at all; there are two natural rocks. I have known them for 30 years from being at sea.

3790. Will you describe the length and extent of those reefs of rock?—The site of the northernmost breakwater is rock.

3791. What is the nature of the shoal; is it rock to the southward?—It is called a shoal; but I understand it is rock.

3792. Do you say that of your own knowledge?—I never sounded it. I only go from what the parties who have been petitioning tell me.

3793. This locality has been in former times extensively used as a place of anchorage by vessels frequenting the coast?—Yes; all our Sunderland vessels belonging to the Wear especially.

3794. Only vessels belonging to the Wear?—Not those only, but the greater part of them belonging to the Wear.

3795. Is this which is marked as the inner breakwater to be a floating breakwater?—Mr. Murray described it to us as a breakwater, being built on piles into the ground, so that the tide might run through.

3796. Mr. *Ewart.*] Open piles?—Yes.

3797. Mr. *Liddell.*] You anticipate, in the event of that being built of solid mason work, that it would have the effect of causing the entrance to silt up?—Yes; it has that tendency.

3798. Lord *Adolphus Vane Tempest.*] I believe you stated, that you approve of this plan which has been shown to the Committee, of which Mr. Murray is the designer?—Yes.

3799. You agree with the evidence of other witnesses, that increased refuge accommodation is very much required on the east coast?—Very much so; indeed it becomes a matter of necessity now.

3800. Have you turned your mind to the question where this harbour should be constructed?—I have seen the plan for Hartlepool, and I have heard from men who are very conversant with engineering works that it would not answer, from being inclosed; and from there being no tide, or current through it; that the tide would not sweep through the channel to sweep the sediment away which collects very much on our north-east coasts. I have never seen the plan myself before now. I have only heard engineers give that opinion upon the subject.

3801. You can only speak with reference to the plan of Mr. Murray for constructing a harbour of refuge at Hendon Bay?—Yes.

3802. And that you conceive would be a beneficial work to have constructed on that coast?—Quite so.

3803. Can you state to the Committee the amount of the area that will be obtained?—I can hardly recollect, but it was to accommodate, to the best of my recollection (and I questioned Mr. Murray upon the subject), 400 moderate-sized vessels; the accommodation, I think, would be about 700 acres.

3804. In the event of the Government deciding to assist in the construction of some harbour of refuge, or increased harbour accommodation on the coast, would it not be a most advisable proceeding that a fairly-constituted commission, both of engineers and nautical men, should take evidence on the spot with regard to the conflicting claims of these various localities, and that such a commission would arrive at a better decision as to the best locality than could be fixed upon without such an inquiry?—Decidedly; I would be in favour of a commission

Mr. *C. Alcock.*

5 August 1857.

to inquire into the matter; but I think it ought to be composed of perfectly practical men, who are perfectly independent of any towns, or localities, or Government influence.

3805. In the event of the construction of a harbour, and it being desirable to obtain a certain annual revenue from the shipping using it, is it your view that it would be advisable to obtain that revenue by a passing toll, or would you make only those ships pay that used the harbour of refuge?—I would be in favour of making every ship that used the harbour of refuge pay; but I am very much afraid that that would not pay for works that would be so large without assistance from the Government.

3806. Would there be a great objection on the part of the shipping interest generally to anything in the nature of a passing toll to pay for the construction of a harbour of refuge?—I think that the shipping interest would never submit, if they could possibly help it, to have another passing toll; they are so much annoyed with the toll for Dover and Ramsgate, &c., being still kept on. The shipowners, to my knowledge, never object to paying that which is fair; they would have no objection to pay a toll when they make use of a harbour of refuge, I think.

3807. Do you think that the imposition of a toll upon ships making use of a harbour of refuge would deter captains of ships from availing themselves of shelter in periods of danger from storms or otherwise?—Not the slightest; it would not have any effect upon the captain. I am pretty conversant with captains, and have discussed those questions with them of taking harbours for safety, and I am quite sure the owners would have no objection; and the captains, I am quite sure, would take them in time of need, and they would be extensively used.

3808. Mr. *Liddell.*] That would depend, I presume, upon the amount of the toll, in some degree?—Yes; if a fleet of colliers was beating to the south, of course it would be advantageous to them rather than risk a loss to take a harbour of refuge; if it cost a 400 ton ship 4 *l.*, it would be much better paying 4 *l.* than losing 20 *l.* worth of sails in a bad night.

3809. Lord *Adolphus Vane Tempest.*] Do you consider that an increase of refuge accommodation on the coast would make any perceptible dimunition in the rates of insurances to shipping on the coast?—I very much question whether it would or not; at first perhaps it might; I have known in one gale, perhaps 30 years ago, 100 sail drifted on shore in one night.

3810. What proportion of that loss do you think might have been saved if there had been increased refuge accommodation?—A very large quantity of it.

3811. It would be to the interest of the shipowners, and would save them a very considerable amount of property, would it not?—Of course; we are our own underwriters, and, I presume, there would be a considerable saving upon that point.

3812. You insure very much among yourselves?—Yes, we underwrite our own vessels; they are generally called clubs, both on the Tyne and on the Wear; a large proportion of the capital is insured by themselves.

3813. Therefore the saving in the amount of wreck that yearly take place would necessarily be very much to the advantage of the shipowners upon the coast?—Yes.

3814. And would that not diminish the rates of insurance the shipowners are paying?—I am not prepared to say positively that it would; but it is very natural that it should; if you save 50 ships a year you would have that much less to pay.

3815. Mr. *Liddell.*] It would necessarily be the result of considerably long experience to ascertain what the dimunition would be?—Yes; it might not affect the rates of insurance in London; they might not take less for doing a ship on a certain passage; but it would materially affect our Sunderland coasters.

3816. Lord *Adolphus Vane Tempest.*] As far as I gather from your evidence your view is, that increased harbour accommodation should be made upon that coast?—Decidedly so, from Flamborough Head to the Coquet Island.

3817. And you conceive that the decision as to the locality had better be arrived at by a commission inquiring on the spot?—Dedidedly so, if it is a practical and impartial commission.

3818. Unconnected with local interest?—Quite so.

3819. And

3819. And you conceive that a certain revenue might be derivable, levied upon ships using the harbour of refuge?—Yes.

3820. But, I believe, your view is, that anything in the nature of a passing toll would be strenuously objected to by the shipping interest generally?—Yes, strenuously objected to; for, at Sunderland, we have taken a great deal of interest in getting our members to get the passing tolls done away with; but I am sorry to say we do not get on very fast.

3821. Have you any tables prepared with regard to the statistics of the trade?—Yes; I have several statistical accounts.

3822. Mr. *Liddell.*] You have some statistical accounts now in your hand, which you wish to put in as an appendix to your evidence?—Yes, I will put them in on Friday.

3823. Is it not the custom in the main for masters of all coasting vessels to run for their own ports, and even to incur some risk in rough weather in order to reach their own ports?—Quite so.

3824. That is a fact?—It is a fact.

3825. Mr. *Ewart.*] Is there not great competition amongst vessels on the eastern coast?—Yes, very great.

3826. Do you not think that if there was a toll levied upon vessels taking refuge in those refuge harbours, captains of vessels would not be so inclined to use them as if there was a toll upon all vessels in consequence of the competition?—Yes, but the shipowners are very much against passing tolls; if the master of a vessel found that his stores would be much damaged in keeping out of a bad night, he would decidedly go in.

3827. You alluded to Ramsgate and Dover; those are not properly refuge harbours; do you think there would be any objection to passing tolls for thoroughly refuge harbours?—I do not think there would be; our owners generally are extremely liberal when they have accommodation, and never object to pay; and of course a harbour of refuge would be the greatest accommodation; of course they would rather be off paying if they could; the only thing they object to is paying for what they get no benefit from.

3828. Do you think that if vessels paid a passing toll for refuge harbours they would not use them much more frequently than if they simply paid when they went into them?—I should think that would make a difference, because it might induce a captain to keep out of a bad night when he would otherwise go in, but our captains generally like to take care of the lives intrusted to them, and I do not see why they should not; and I have no hesitation in saying that it would give satisfaction in their having to pay when they entered the harbours.

3829. You do not think they would be prevented by moderate toll when they enter from taking refuge in those harbours?—No; but a passing toll they would decidedly object to; indeed, at Sunderland we have contested the point with Dover; we contested it first with Ramsgate, and succeeded in accomplishing that; we had only to pay once in the year, whereas they had charged us every time we passed. At Dover we succeeded in the same way lately; I have passed myself Ramsgate and Dover 13 times in a year, as captain, and paid 13 times.

3830. But a refuge harbour would be of use, and those harbours are of no use, therefore the cases are not quite analogous?—Not quite so; I do not think they would object to pay for a harbour of refuge when they used it; but I do think they would object to a passing toll strongly.

3831. Mr. *Liddell.*] You speak upon behalf of the large shipping interest of Sunderland; do you think that the trading public would be more satisfied with an expenditure of public money upon one large work at a place to be at a future period selected upon the coast for the site of a harbour of refuge, or to be expended upon the improvement of existing harbours?—In the neighbourhood of Sunderland there is a very large portion of the traffic carried on; Sunderland is the centre; Hartlepool is on one side, Tynemouth and the Tyne is on the other; and I think that, by having one harbour of refuge, it would be a very great benefit; but I do not mean to say that if there was another one or more constructed it would not be a greater benefit.

3832. You are in favour of one harbour of refuge, and that one at Sunderland?—If I had my own way, I would be in favour of two harbours of refuge; I certainly do agree that the Tees' Bight is quite as dangerous as Sunderland, but there

Mr. *C. Alcock.*

5 August 1857.

there is not the traffic in the Tees' Bight that there is in the neighbourhood of Sunderland.

3833. Your objection to Tees' Bay as a locality is, that it is out of the course of the large mass of the shipping bound for the northern ports?—Quite so; a ship seldom or never runs down into Hartlepool Bay without it is driven there; if driven there of course she is obliged to go there, but the Tees used to be (I do not know what it is now, because I have not been there for many years) a good harbour to take in light vessels, which are the sort of vessels generally driven into Tees' Bay; so that Sunderland, being in the centre, makes me more in favour of Sunderland than any other place.

3834. Lord *John Hay.*] I think I understood you to say, that the traffic at Sunderland was so much greater than at other ports?—No; in the coasting trade it is nearly equal to the Tyne.

3835. With reference to the whole traffic of Sunderland, as compared with each of the other ports, do you consider that it is greater or less?—Taking Hartlepool and Newcastle together, I should think ours is as much as theirs in proportion; but the Tyne materially beats us in the foreign trade.

3836. The Committee have before them a statement, in which it says that at the port of the Tyne the annual traffic is 45,000 vessels, and at Sunderland 18,794; do you think that is an accurate statement?—No, I think not.

3837. Is it near about?—Perhaps it may be correct; I am not prepared to say whether it is positively so or not; in the year 1854 the number of vessels entering and sailing from the port of Sunderland was 13,795, and I should think our trade must have increased one-half since that; so that it is not much out of the way; that may be pretty accurate.

3838. Comparing Sunderland to Hartlepool and the Tees, do you think the statement the Committee have of the annual traffic at Hartlepool, being a little over 19,000, and that of the Tees a little over 10,000, is likely to be correct?—I should think very nearly correct.

3839. So that in Tees' Bay the traffic is very much greater than it is at the port of Sunderland?—No.

3840. Hartlepool is 19,000 and the Tees a little over 10,000, so that there would be 29,000 vessels in Tees' Bay altogether?—If you add 45,000 entering the Tyne and 18,000 at Sunderland, that is 63,000; from Seaham alone last year there were 4,443 vessels sailed; and Blyth and Seaton and all those places increased the number of vessels sailing from that part of the coast, which Sunderland is the centre.

3841. Mr. *Liddell.*] You are now speaking of the ports north of Newcastle?—Yes; but Seaham is to the southward; there is much more traffic than there is down in Hartlepool Bay; fully double, if not considerably more; these statistics which I am giving are from the Custom-house at Sunderland, signed by the collector's clerk.

3842. In your opinion, what Hartlepool would appear to gain from its central position, it would lose from the vastly increased amount of shipping which frequents the ports considerably to the north?—Decidedly so, only I do not think Hartlepool is in a central position; I think Sunderland is in a central position.

3843. If you draw a line from Flamborough Head to Newbegin, what should you consider the most central position of the Bay so described?—The northernmost coal ports are the most weathermost ports with the wind from the eastward; a ship coming out of a northern port is certainly further to the windward than a ship coming out of Hartlepool, for a ship in bad weather cannot get out of Hartlepool at all with the wind at east blowing hard.

3844. You say that from your naval experience?—Yes; when the wind is from the east-north-east blowing hard, they cannot get out of Hartlepool at all; when the wind is more northerly they can get out; we are not too windward at Sunderland to clear the coast if it blows very hard, without the wind is more from the north than east-north-east.

3845. Lord *John Hay.*] Have the wrecks which have taken place off the coast of Sunderland and in the vicinity been principally vessels trying to get into the harbour, or vessels driven on shore from stress of weather?—Part of each.

3846. Do you mean about equal in proportion?—I cannot answer that question,

tion, I think it would be about half each; vessels taking bar harbours very often happen with an accident; they strike on the bar and go on shore. Mr. C. Alcock.

3847. It has been stated, with regard to another harbour, that very nearly the whole of the vessels lost in the great gale which took place some years ago were lost by running into the harbour when they might have kept to sea; therefore, as far as a harbour of refuge was concerned, it was not in that case absolutely necessary except to avoid the vessels losing time by keeping to sea instead of going into the harbour?—That is quite right; in vessels taking bar harbours, very frequently in Sunderland, and Shields too, they run into each other; but in a harbour of refuge that would not be so, because it would be a complete area of ground; the other is a narrow channel to run to, and the channel at Sunderland is not 200 feet wide inside, and if two or three vessels bring up they block up the channel; but that would not happen in a harbour of refuge at all; because it would be an extended front to the sea to keep the sea off by the front wall. 5 August 1857.

3848. Mr. *Liddell.*] Is that a defect to which you think bar harbours are generally liable?—That is the defect going into Sunderland, and Hartlepool, and the Tyne; it is the same in all, more or less.

3849. Lord *Adolphus Vane Tempest.*] In your statement, with regard to the shipping of Sunderland, do you include also the shipping at Seaham harbour?—No, I have that separate.

3850. Mr. *Liddell.*] Can you state the extent of the expenditure that has been already incurred in improvements to the docks and harbour at Sunderland?—I I cannot state exactly; it was 800,000 *l.* some time ago, and now it amounts, I presume, to nearly 1,000,000 *l.*; in the last discussion we had about Ramsgate, it came out that Ramsgate cost 1,500,000 *l.* in 40 years; now in eight years we have expended nearly 1,000,000 *l.* at Sunderland by private enterprise, so I think that is one reason why we should be assisted by the Government, if we are as good a site as any other.

3851. Are you speaking of the harbour to be constructed according to that plan laid before the Committee?—Yes, it is one part of Mr. Murray's plan, that that inner breakwater shall be for that purpose; but I believe that a frigate now could enter the Sunderland docks for coal in time of war.

3852. Can you state that of your own knowledge?—I know that there was 25 feet of water upon the bar some little time ago, but I am not prepared to say that a frigate is only 25 feet; some, I presume, are less.

3853. That was at high water?—Yes.

Mr. *John Robinson*, further Examined.

3854. Mr. *Liddell.*] WHAT is your opinion of the desirableness or the possibility of obtaining a passing toll, levied upon the coasting trade, for the purpose of defraying the expense of a harbour of refuge upon the east coast?—I think it is not desirable, and I think it is impossible to obtain it; I think a very small minority of either House of Parliament would be found to support such a proposition. I think it would be universally opposed by all the shipowners throughout the kingdom. If we were offered a passing toll in support of the Tyne we would not accept it. The shipowners, for the last 30 years, have been contending against the injustice of the present tolls; for 15 years they have been contending against the imposition of further tolls; the last 15 years they have been contending to have the tolls abrogated. At the time the passing tolls were obtained those harbours were all put forward under the pretence that they were to be a benefit, as a refuge to ships, and they have all proved rather traps than otherwise to damage them. We receive considerable damage from what we are paying a large amount of money for. Mr. J. Robinson.

3855. An attempt was made on the last occasion to draw some comparison between the tolls levied for lights and the proposed toll for the support of a harbour of refuge; do you think any comparison can fairly be drawn?—None whatever; lights are always beneficial, either by night or day; they are useful as a landmark by day and as a guide by night. Harbours of refuge are not so; they are only useful when they are used, and it greatly depends upon the position of the harbour, and the mode in which it is made, whether it does not turn out quite the reverse of a benefit; more an injury.

3856. Is it your opinion, that, in the event of a harbour being constructed on

Mr. *J. Robinson.*

5 August 1857.

a convenient site, there would be no objection, on the part of shipowners, to pay a toll on the use of the harbour?—I think they would make no objection, unless it was excessive, so as to act as a preventive of the ships making use of it.

3857. Do you think the shipping interest would pay readily for the use of a harbour to which they were compelled to resort by stress of weather?—I think they would.

3858. In your opinion, would the loss of life arising from the want of a harbour of refuge be more effectually prevented by one harbour of refuge, or by the improvement of the several harbours on the east coast?—I think it would be more prevented by the improvement of several, because the ships always endeavour to make for the harbour they are bound to or have come from, and the cases are rare, more particularly in harbours so near each other as these, in which a ship cannot exercise an option; they would continue to go, if possible, to the ports they were bound to.

3859. Would masters even, in the absence of instructions from the owners, be inclined to save their owners the loss of time consequent upon running out of their course to make a harbour that lay out of their course?—Decidedly so; a vessel bound for the Tyne or for Blyth putting into any of those harbours, when she could by extra exertion or a little risk get to her port of lading, say the Tyne or Blyth or Sunderland, would, by putting into the harbour, incur a delay of, it might be a fortnight or a week or three weeks; it would be far more loss to the owners than any tax for using the harbour that could be imposed upon them.

3860. We are supposing that the weather is such that keeping the sea might involve the loss of the vessel; what would be the feelings of the master under those circumstances?—He would still give the preference to the port he could go to; but I should say the first consideration would then be the safety of the ship and the lives, without reference to the cost at all.

3861. It would be his duty to do so?—It would be his duty to do so, and no doubt he would act upon it.

3862. To what extent would the improvement of the various harbours upon the coast benefit the fishermen employed upon the coast?—I think money laid out for the benefit of small places for the fishermen would be very beneficial; they are very much exposed; a great number of lives are lost by gales suddenly coming on; and they are poor and are unable to provide security for themselves.

3863. Can you then speak from experience, that there is a very great loss of life on board the fishing boats in the course of the year?—Yes, considerable.

3864. Is the fishing trade for the whole length of that coast very considerable?—It is very considerable, and it is a benefit to the whole of the towns in the kingdom; in fact, the great manufacturing districts benefit more than the towns upon the coast; the fish are carried in and sold cheaper in the interior than they are upon the coast now.

3865. Are not the fishing vessels employed upon the coast, being of small tonnage and light draught, able to obtain refuge in the existing harbours now without much risk?—In the existing harbours they might; but the harbours are so far from them, and they might not be able to live long enough to get to the harbours.

3866. Would not that apply equally to the existing harbours, even although they were improved as you have suggested?—The large harbours; I am speaking of the small places which they fish directly off, so that if a gale came on direct on the land they could run before it to a small place, small breakwater costing 100 *l.* in some instances, which might be partly raised by the assistance of the locality, would be a great benefit in many places.

3867. It would be of no value to the coasting vessels generally?—No, but merely to the fishermen, who are a very important class of men.

3868. You have expressed your decided dissent from the opinion of Mr. Calver, that a harbour of refuge is not required when the wind is from the south-east?—I think it is as much as any other, inasmuch as we have larger fleets with a gale of wind from the south-east.

3869. You mean that vessels bound to the north take advantage of a south-easterly wind to return home?—Yes.

3870. It is a favourable wind for the homeward voyage?—It is.

3871. Are you of opinion that a harbour of refuge constructed at Hartlepool would

would be useless in a gale from the south-east?—I do not know that it would be useless, but it would not advantage the great bulk of the ships that were running down upon that coast.

3872. Will you state to the Committee the reasons why you say that?—The great mass of the ships coming with south-east winds are light ships and would run down, the wind being fair, towards the port they were bound to; such ships as were bound to Hartlepool would endeavour to get there; those who got to the north, if they could not get into the ports they were bound to, could not return to Hartlepool, it would be impossible, and the land trending more to the eastward as they go north, they would become embayed upon the rocks to the north, down about Staples and Holy Island.

3873. Treating the great extent of that coast, drawing a line from Flamborough Head to the Ferns to the north, as a bay, you would not consider a south-easterly wind as an embaying wind to vessels passing that part of the coast?—No, it is not an embaying wind, but the vessels being bound to ports there naturally draw into the land, so that when they get down as far as Sunderland, and that way, it actually becomes an embaying wind with the wind south-east to east, south-east, and east; they cannot clear the land on the port tack, and, as they go north, they meet the land on the starboard tack.

3874. As a vessel approaches the port to which it belongs, it is the natural tendency to hug the shore closer than she would under other circumstances?—Yes, to make her port.

3875. What do you calculate to be the amount of loss in gales from the south-east compared with other winds?—From my own experience, and a casual look at the Admiralty returns, I should say three or four vessels are lost in south-east gales to one in any other; that is, in the distance between Flamborough Head and the Staples.

3876. Supposing a harbour to be constructed by that extension of the piers at the mouth of the Tyne, in your opinion, would sufficient shelter be afforded to gales from the south-east?—From all gales, in every wind that blows, to any amount of tonnage; in the gale of the 4th of January, I believe from 500 to 700 sail ran into the Tyne; of those, I think some 20 were wrecked; I do not exactly recollect the number.

3877. Lord *John Hay.*] Supposing that the piers were constructed off the Tyne, as was proposed the other day, and vessels were to take advantage of it, in making them pay the toll, how would you distinguish which were taking advantage of it for purposes of refuge from those which would not be doing so?—In the Tyne we have hitherto made no distinction.

3878. But you have no harbour of refuge yet?—Ships do take refuge there.

3879. You cannot call it a harbour of refuge at present?—Practically it is; they take refuge there to a very large amount, it being the best harbour upon the coast.

3880. You have made no distinction?—No, we have made no distinction; when we first got the Act for the formation of those piers, we levied no duties upon any ships taking refuge; the only ships that paid were the ships making use of the harbour for the purposes of trade; but, in the neighbouring harbour, we found that they got an Act to compel the payment of three times the amount for ships taking refuge that the other ships using the port paid, and since that, we thought it should be collected upon all ships, whether trading or not, and that has been done.

3881. Supposing this was formed, you would not propose to charge any more than just the same for those taking advantage of the port as a harbour of refuge than for those going to it for purposes of trade?—We do not propose to do so, and if we received Government aid, we should leave the ships to take the harbour as a refuge free. I may say, that our present project will make it everything that the ships along the coast could require; if it is carried out further, it would be more as a refuge for men-of-war, because there are no vessels that go along the coast that would not find a refuge even in our present works carried out; so that we think we have a claim on the Government for anything further that may be done.

3882. Supposing that you had a grant of public money, and the Government expected a return for it in the shape of a toll, how would you define which vessel should pay this toll?—The vessels that use the harbour for purposes of trade could not be called refuge ships, although, in the first instance, they might have taken the port for the purpose of refuge.

Mr. *J. Robinson.*

5 August 1857.

3883. Then, supposing the toll had to be paid by vessels taking advantage of the port for purposes of refuge, you would, by your system, not make the vessels belonging to Newcastle pay a toll?—Yes, all ships. Our plan at present is a charge of 1 *d.* upon coasters; that is, ships in the coasting trade, which include all that is considered coasting under the Mercantile Marine Act; vessels going foreign pay 2 *d.*, and we charge that equally upon all ships whether coming in for refuge or coming in to load. A vessel may come into the harbour for purposes of refuge, but, when she comes there, she may fix to load, and we cannot say that ship has come for the purposes of refuge; it is necessary for the captain himself to say whether that is so; it would be impossible to define it except by saying, this ship has made use of it for trading purposes, and the other, having departed without making use of it for trading purposes, has come purely for refuge; but in a great many cases they would be both.

3884. You mean to say that you could not define it?—Not distinctly.

3885. Did you say, on the last day you were examined, that all the vessels that were lost in that gale, to which you have referred, might, by keeping the sea, have been saved, and that those that were lost were lost merely in the attempt to enter the harbour at the time the sea was so great and the wind so strong as to make it a very unsafe proceeding?—Not all; some of them might; but they would have had to take the necessary steps long before they came near the port; when they had run down upon the port they could not escape; they must go in; they were then embayed. But if, when they were 20 or 30 miles to the south-east they had hauled their port, the ships would have gone away clear of the Scotch coast.

3886. I think you said that vessels ought not to pay a passing toll, because it would be unjust to make them pay for that which they did not use?—Yes.

3887. Supposing a harbour of refuge was constructed off Sunderland, for instance, do you not think that vessels that were able to go to nearer the port of Newcastle in heavy weather, in consequence of having a harbour of refuge to run to, would drive up from the position of that harbour, from the harbour of refuge existing, even though they did not go in?—I do not think they would get any advantage whatever.

3888. Supposing you were upon that coast, and proceeding to the harbour at the mouth of the Tyne, and the wind was blowing hard on shore, and you were not quite certain whether you would get in or not, would you not be likely to go much closer if you knew you could run into a harbour of refuge, supposing you found you could not get into the Tyne, would you not be inclined to do that in preference to going to sea; you would run down to the land and take a look at it, if you knew the harbour of refuge was in that position, that you might make use of it?—No doubt you would make bolder with the land than you otherwise would do.

3889. You would derive an advantage from knowing that you had a harbour of refuge to run to, even though you did not use it?—It would be very trifling.

3890. Lord *Adolphus Vane Tempest.*] I understood you to say just now that, in your opinion, the improvement of the harbour accommodation in the Tyne would answer the requirements of the whole coast?—Yes, as a refuge, as well or better than any other place.

3891. But supposing the improvements had existed with regard to the harbour accommodation at the Tyne, would that, in your opinion, have saved the wrecks that are marked down here, or any portion of them, at Sunderland, Seaham, Hartlepool, or Tees' Bay?—I do not know that it would many of them; the great bulk of them were with a south-east wind, and they went to the port they were bound to.

3892. Then, if an improved harbour accommodation at the Tyne would not have saved any perceptible proportion of those wrecks, how do you account for your statement that an improvement of the Tyne harbour will answer all the requirements along the coast?—If they chose to make use of it, it would, as far as refuge went, in a south-east wind; but they would not do so practically unless forced; where a ship is on a lee shore, of course they do the best they can for the safety of life and property, but, in the case named, these ships could choose their own port.

3893. How

3893. How do you account for the two views you entertain, that an expenditure at the Tyne would meet all the requirements of the coast, and at the same time it is your opinion, that if that expenditure had taken place at the Tyne it would not have have saved any large proportion of the wrecks that are marked down as taking place south of the Tyne?—It would have met all the requirements, if the ships chose to make use of it; if the ships were obliged to take refuge they could take refuge in the Tyne if it was a case of necessity, but they had the option, and they exercised it; and those ships that were lost were lost in going into those ports; if the Tyne had been improved, the ships that went into the Tyne on that occasion would have been saved; and, with regard to the other ships, if they exercised the option and went into other ports the fault lay with themselves; they went into those ports for the purposes of trade, and, by some mistake, either bad seamanship or something or another, they were lost.

3894. Then the effect of improving the harbour accommodation of the Tyne, and the Tyne alone, on that coast would be to draw the shipping, in stormy times, entirely away from the ports they are in the habit of trading to, to the harbour of the Tyne?—In some degree it might; but, although I say that the improvement of the Tyne might answer all the purposes of a refuge, yet I think those objects would be much better attained by improving all existing harbours, inasmuch as those ships would use it, let the other harbours of refuge be ever so good, if they possibly could; it would only be in cases of extreme necessity that they would avoid going to the port they were bound to.

3895. You modify your statement, that an expenditure of money upon the Tyne would be all that was requisite, by adding, that you think that all the existing harbour accommodation along the coast might be very advantageously improved?—I think so, very.

3896. Mr. *Philipps.*] You say that you would prefer an outlay upon the different ports along the coast?—Yes.

3897. Would those different ports be glad to pay for that; do you think it likely that, if Govenment were to advance them money, they would repay it in the course of 20 years, or something of that kind?—I am not prepared to say.

3898. What is your own opinion?—I do not think they would be prepared to meet the whole.

3899. If it is for a local improvement for the different ports, would it not be just that they should pay for it?—Improving the local ports is a benefit, so far as it saves life and property.

3900. You say, that you would rather have an outlay of money at the different ports along the coast; if that is for the local improvement of those ports, is it not right that they should pay for it themselves; if Government advance the money, is it not right that they should repay that money themselves?—I think the harbour authorities should contribute.

3901. In your opinion Government should give those ports something?—Yes, for the public benefit.

3902. A public benefit to the local ports?—It is a public benefit, inasmuch as by improving the ports where ships will resort to there is a great saving of life; some of them might be made available for the purposes of men-of-war.

3903. Mr. *Liddell.*] Do you think that the community for whom you speak would be satisfied by the issue of the appointment of a fairly constituted commission to go at length into this question and examine the coast with a view to the construction of a harbour of refuge somewhere?—Yes, I think so.

3904. You think it would meet the views entertained by the large trading communities of the trading ports?—Yes.

3905. Mr. *Augustus Smith.*] When you speak of its being fair for the Government to contribute towards these local harbours, to make them available as harbours of refuge, you would perhaps put it upon the footing that vessels going in there merely for refuge should be free?—Yes; there is no objection to that.

3906. Mr. *Clay.*] You have heard, in common with all shipowners, of the local burdens on shipping; are you aware that there is a considerable surplus at present that has arisen from the light dues?—Yes.

3907. Supposing it were proposed, instead of reducing the light dues, which might be done, to continue them at their present rate and to apply the surplus to defraying the expenses of harbours of refuge, how do you suppose the shipowners would

Mr. *J. Robinson.*

5 August 1857.

would like that?—It would still, in some degree, embrace the nature of a passing toll, but it would be a general tax.

3908. Do you think they would be contented with an arrangement of that kind?—I have not considered that subject.

3909. Mr. *Liddell.*] Would they not prefer a reduction in the light dues in the first instance?—No doubt of it.

3910. Mr. *Clay.*] The shipowners complain of the various dues raised by the Trinity Houses and corporations which are not expended for the benefit of the shipping, do they not?—Yes, they do.

3911. They have some expectation of being relieved from such dues, have they not?—We did hope that Government would have carried forward what they promised, and have relieved us from them this Session.

3912. Would they be contented that those dues should remain at their present amount, provided they were spent in this way, in defraying the expenses of harbours of refuge; would they consider that the money that was then taken from them was spent for shipping purposes, or would they prefer relief from the dues, and leave harbours of refuge where they are?—I am not prepared to answer that question; but it would be taxing one class of shipping for the benefit of another; for instance, shipping passing Dover and Ramsgate, many of them, if you made harbours of refuge on the north-east coast, would receive no benefit whatever from them; therefore it would be a partial tax.

Mr. *Frederick Wherland,* called in; and Examined.

Mr. *F. Wherland.*

3913. Mr. *Liddell.*] YOU are connected with Liverpool?—Yes; I sail out of Liverpool.

3914. In what capacity are you connected with that port?—I am Master of Mercantile Marine.

3915. And you speak on behalf of the shipping interest of that port?—Just so.

3916. Are you acquainted with the foreign trade leaving the port of Liverpool, as well as the coasting trade?—I have been altogether in the foreign trade; I have been up and down the Channel a number of times.

3917. You speak of the foreign trade rather than of the other?—Yes.

3918. Taking vessels for America, what locality would you be disposed to run for if you were caught after leaving the Mersey by stress of weather?—I presume that I would get down to Carlingford, and in that direction; a south-west wind being the wind that would detain me, would lead me to Carlingford from Holyhead.

3919. What is the gale the most to be dreaded for outward-bound vessels to America upon those coasts?—South-west and north-west gales.

3920. Is the greatest loss of shipping experienced during those gales at present?—I could not pretend to say where the greatest loss has been experienced, having been absent from the country so much; I only speak from the experience of seamen, that those are the most dangerous winds in the Irish Sea and St. George's Channel.

3921. In a north-westerly gale, or a south-westerly gale, what existing harbour would you be disposed to run for?—I do not see any nearer than Belfast Lough; Dublin Bay is rather a critical place to get into.

3922. What locality would you point to as best under those circumstances for a harbour of refuge?—In the Irish Sea, Carlingford or Ardglass, they are equally good in position.

3923. You can speak to the natural facilities of those places for the purposes of a harbour of refuge?—Yes; in the first place, the soundings lead you very much; there is a deep patch of sand in 70 fathoms, and then it is shoal-to 40 fathoms, and it gradually decreases to 15, which would facilitate the navigator very much in approaching the land, when he could not see a great distance; and, going in with a south-west gale, you have a weather shore when the wind veers west-north-west to lead you down Channel, whereas I do not see that you could avail of the west-north-west winds at the other ports.

3924. Are there any other localities that you think as desirable in the same point of view?—I consider the vicinity of Waterford a very critical place; between

between Tuskar and the Smalls and Waterford would enable us very often to avoid that critical place, for vessels going down the Channel get round Tuskar with the wind at the south, or say south-south-west; after getting round, the wind generally breezes up, and gets into the south-west; of course, that heads the ship off towards the Irish shore; standing across there, a navigator would naturally say, I cannot go any further, and I will keep an offing; in trying to keep an offing he will not lash the ship over against the Smalls, being a dangerous place, owing to the tides and conflicting currents of different descriptions, and naturally he will keep his ship under easy canvass to keep the Irish shore. During the gale he will very often find himself drifted up above Tuskar, owing to the small canvass that he is under, and through the indraughts into Cardigan Bay; then, when the wind comes off from the west-north-west, he will find the Smalls on the lee shore, whereas, could he have got into Waterford Harbour that night, he would have had Waterford Harbour in a good position for the north-west wind, that would lead him clear of the sea, or even with the wind northward of west, the course from Waterford, clearing the Scillies, being south-south-west-half-west.

3925. Is much loss occasioned to ships in the vicinity of Tuskar?—It is the place that we dread in navigating the Channel between Tuskar and the Smalls; and not only is the loss occasioned by the strong tides, but, being in the narrows, of ships running up the Channel.

3926. Is there great loss experienced in the neighbourhood of Tuskar now from the want of a harbour of refuge which ships could make?—I should say that there is; I have known several ships to get on the Blackwater Bank, whereas, could they have pushed to get into a harbour of refuge, such as Waterford, they might have gone there.

3927. Have you examined the Wreck-chart upon that subject?—No; I have drawn a rough sketch of the chart to show what I state (*producing the same*).

3928. Do you think that this is the most difficult point of the navigation for ships leaving the Mersey in their outward course?—I decidedly think so.

3929. At present there is no accommodation for vessels of a large tonnage at Waterford Harbour?—None.

3930. Are you personally acquainted with Milford Haven?—No, I am not.

3931. Can you, of your own knowledge, state, in the event of a vessel being caught under the circumstances that you have described, and having the choice of Waterford Harbour on the one side and the Smalls on the other, whether it would be practicable for her to make Milford Haven in a north-west or south-west gale?—Yes, she could make it, but she would have the disadvantage of being on a lee shore when the wind veered to the north-west, and she would have a difficulty in getting clear of the Scillies, or into the great in-draught up the Channel; whereas, in the case of Waterford, she would have the advantage of a weather shore.

3932. Do outward-bound vessels avail themselves much of Milford Haven at present?—I am not aware that they do, owing to the difficulty of getting out.

3933. There has been a good deal of discussion before this Committee upon the subject of passing tolls for the support of these harbours; can you speak on behalf of the shipping community of Liverpool, as to their opinion upon the propriety of being called upon to pay passing tolls for the support of refuge harbours?—I cannot give the opinion of the shipowners of Liverpool; but, as to my own opinion, I certainly would say that the fewer harbours of refuge are, the more they would be used, for at present a feeling exists about putting into any harbour, and I think it originated from the expense incurred.

3934. Would it pay you, as the master of a vessel, to run the risk of keeping the sea in order to save the owner the expense attending the use of a refuge harbour?—It certainly would pay, for I should say that I could get into no refuge harbour in a ship such as I command under from 5 *l.* to 7 *l.*, and that, added on to the pilotage, would come, I presume, to nearly 13 *l.*, and that would pay very much for going into a harbour for 24 or even 48 hours.

3935. You would be disposed to incur a certain amount of risk in heavy weather in keeping the sea rather than incur that extra expense?—I decidedly would.

3936. Mr. *Ewart.*] You have been for many years sailing out of Liverpool I understand?—Fifteen years now; I have been two or three voyages to London in the mean time.

Mr. *F. Wherland.*

5 August 1857.

3937. You know the Irish Channel very well?—I should presume I know it perfectly, going up and down it.

3938. What are the gales that frequently prevail on that coast?—I should say from south-west to west-north-west.

3939. Does the south-west gale generally end in a north-west wind?— It generally flies into the north-west; it blows during some five or six hours, and moderates down gradually.

3940. Then, if you are caught in a south-west gale on the south of Ireland, what place would you run to?—Below Tuskar; Waterford decidedly, if I could get in there; if it was available for a ship of my tonnage.

3941. At present what place would you try to run for?—I do not know of any other place; I certainly would not go over to Milford as long as I could hold my own.

3942. Would you be at all tempted to go the north-about passage?—If I was about Tuskar, and the weather was clear, I should run out north-about; but under no other circumstances.

3943. If I understand you rightly, you are decidedly of opinion that if a harbour of refuge were constructed, it should be on the Irish coast?—Yes, I should say so; I am of that opinion.

3944. You do not know Waterford?—No more than from the knowledge I have acquired by seeing a plan of the harbour.

3945. So far as the situation of Waterford goes, do you think that the situation of Waterford would be better than any other upon that part of the coast?—Decidedly; for it possesses a double advantage. It has the advantage which I have stated, and also ships bound home, in missing Cork, with the wind to the northward and north-west, would have Waterford to bear up to, whereas, if they tried to fetch Cork, they would be detained some two or three days trying to get to windward, and Waterford, being situated in a bight of the coast, relieves a ship during a southerly gale, for the land trends away to Waterford, and a ship going there would keep her offing until she got to the bight of that bay, and, having Waterford available, she could run in and save herself; and a ship bound up Channel, with the wind from the southward, fearing heavy weather, would proceed with more confidence, knowing that she had Waterford under her lee to avail herself of before she got round Tuskar.

3946. Do you know the refuge harbour at Holyhead?—I have never been in it; I know how it is situated.

3947. Judging from your experience of the ports on that coast, do you consider Holyhead a very good harbour of refuge to run for?—It has the disadvantage of being a lee harbour; there is a difficulty in getting round the head and down again with the wind from the west-north-west and north-west, and there is a difficulty with the wind north-east. I believe you cannot get out of that harbour without steam.

3948. One great objection would be, that you would be likely to be embayed there?—Yes.

3949. Do you know the east coast of Ireland above Waterford?—Yes; from Tuskar up to Carlingford, I can say I am well acquainted with it.

3950. Is there any other place that you would suggest as a harbour of refuge?—There is no other harbour that I would run for under any circumstances, owing to the banks; the Blackwater, the Arklow, the Codling, and the Kish; those are all dangerous banks.

3951. Is there any other place to the north of Dublin that you would suggest for a harbour of refuge?—Dublin Bay is a very critical place to run for with a south-west wind, for a ship has to keep a good offing and keep clear of the banks, and she has to run for the light ship, and after rounding the Kish light ship the course in is about west by north.

3952. Do you know Carlingford?—I know the situation.

3953. Do you think that the situation of Carlingford would be better than Waterford, taking all the circumstances into consideration; taking the winds which usually prevail on that coast, would it be a better harbour of refuge than Waterford?—No; for Waterford possesses a double advantage for homeward-bound ships as well as outward-bound; in fact, I believe it is more in favour of the homeward.

3954. Do you know the Isle of Man?—Only the situation.

3955. Have you ever been in Douglas Bay?—No.

Mr. *F. Wherland.*

5 August 1854.

3956. Do you think that Douglas Bay would be a desirable situation for a harbour of refuge?—I think that the Isle of Man has nearly the same disadvantage as Holyhead, being nearly embayed, Burslem on the one hand and the Mull of Scotland on the other, and vessels would not be able to go down the Channel with a west-north-west wind; it would take a south-west by western course to lead the Channel, and no ship would presume to go closer than eight points; with heavy weather we can lie within six points, but under double-reefed topsails I do not think it would be prudent to say that a ship could depend upon her course closer than eight points of the wind.

3957. With respect to the question put to you by Mr. Liddell, about passing tolls for a refuge harbour, would you, as master of a vessel, rather see a low rate levied upon all vessels passing the refuge harbour, and therefore likely to take advantage of it, than to make the vessels pay that actually took refuge in that harbour?—I would sooner pay the low rate decidedly.

3958. Do you think it would be better for all vessels passing that refuge harbour to pay a low toll than to charge a toll upon vessels using the harbour only?—I decidedly do; because many vessels, although they will not use the harbour, will derive an advantage from the harbour giving them confidence proceeding along the coast of Ireland in southerly winds, knowing that they have a harbour under their lee; so that many vessels doing that and going into Waterford Harbour will derive an advantage, having confidence in that in getting round Tuskar.

3959. If there was a good harbour of refuge at Waterford, do you think that large ships would more frequently sail out of Liverpool, knowing that they had this refuge harbour in case of need upon their lee, than is the case at present?—There is a very large stretch till they get to Tuskar, but at Tuskar I think is the critical point; but whether it would induce vessels to start from Liverpool I would not say.

3960. Mr. *Phillips.*] I suppose that, speaking of Waterford harbour as a harbour of refuge, you are referring more to the advantages of Waterford as a harbour of refuge for homeward-bound shipping, are you not?—I think that it possesses a double advantage for outward-bound and homeward-bound.

3961. It would be chiefly for homeward-bound ships, because, in the first place, an outward bound ship would not go out except in fair weather, and she would have first Holyhead Harbour to fall back upon; and, after that, where would she have to fall back upon, if driven back?—If she could get past Holyhead Harbour she would in all probability get down as far as Tuskar, that is her point; then she would avail of Waterford with a south-south-west wind getting round Tuskar.

3962. How far is Tuskar light from the mainland?—About three miles, I think; I cannot say the exact distance.

3963. It is the point that every ship makes coming up and going down Channel?—It is the point that every ship makes coming up and going down Channel.

3964. First, in coming from the Atlantic, they make Cape Clear, next Tuskar, and then Holyhead?—Yes.

3965. Any vessel coming out of Liverpool, if she gets past Holyhead, and then meets with a very heavy gale from the south-west, which would be the one that would impede her and that she would dread, then has Holyhead Harbour to go back upon on one side?—Yes.

3966. And has not she got Dublin Harbour on the other side?—I do not think Dublin Harbour is a good harbour to run for.

3967. Do you consider Kingstown Harbour a harbour of refuge or not?—I do not.

3968. Why?—From the Kish light-ship it will require a west-by-north course to get to the Kingstown piers, with a south-west wind, or a little to the west rather, and a ship will not be on that course with a south-west wind.

3969. Then Kingstown Harbour is not of any practical use to the mercantile shipping engaged in the Irish Channel, generally speaking?—Not as far as a refuge harbour is concerned, I should not consider it so.

3970. Then why do you think that Carlingford is the best place?—It is just in the lee a ship would take with a south-west wind from the Head to Carlingford.

Mr. *F. Wherland.*

5 August 1857.

3971. And it would be safer for the mercantile marine to run straight up for Carlingford rather than try Kingstown Harbour?—I am of that opinion.

3972. You would do that?—I would do it.

3973. Under a south-westerly gale, outward bound?—Yes.

3974. Then you would run for Carlingford, and then you think you would be safe from the north-westerly gale which follows the south-westerly gale?—It would be in a good position to take advantage of the north-westerly gale.

3975. That is the reason why you prefer Carlingford?—Yes.

3976. And you prefer it to anything on the west coast, or to the Isle of Man?—Yes, decidedly.

3977. You do not think that any outlay on the Isle of Man would be of any use?—It might be of use, but if only one harbour is to be made in the Irish sea, I would say that Carlingford Bay is the best place; of course the more harbours you make the better.

3978. If two harbours were to be formed you would like Waterford first and Carlingford second?—Yes.

3979. You said, I think, that Milford Haven is not often used?—I do not think it is; I have spoken to many on the subject heretofore, and they all have that objection of getting out and getting clear of the Scillies and the great indraught into the Bristol Channel; you would have to make a very weatherly course, I would almost say to make a west course, to clear you of the Scillies.

3980. It is a distance of about 50 miles from Cork Harbour to Waterford?—Yes, about that, or a little more.

3981. Do you prefer an outlay at Waterford decidedly to an outlay at Wexford Harbour?—I would not entertain Wexford at all.

3982. Why?—Owing to the banks outside of it.

3983. And you do not think that engineering skill could remedy those objections?—I would not be presumptuous in giving an engineer's opinion, but I think that the outlay, if it could be done at all, would be immense.

3984. You said that you did not like running in for Dublin Bay, because there was a light-ship, and you do not like running for floating lights; are you not obliged to run for a floating light at Liverpool?—Hardly; you make the Head first.

3985. The floating-light is the first light entering Liverpool harbour?—Yes, entering the bay of Liverpool it is, but then we have our position well established coming up the Welsh coast from Holyhead and the Orme's Head.

3986. You do run for a light ship at the entrance to the harbour of Liverpool?—Certainly.

3987. You have no other alternative, because of the banks being so bad; you are obliged to have floating lights?—We are obliged to have floating lights, but the pilots generally run for that particular light, and they are well acquainted with the course.

3988. Where do you take your pilot on board?—At Point Lynes. We always lie to till we get a pilot there.

3989. You have an aversion to these floating lights in a gale; they may move?—Yes.

3990. It has been the case that they have moved at Liverpool?—Yes.

3991. And occasioned serious loss?—Yes.

3992. Sir *Frederick Smith.*] What points are you familiar with in the Channel?—Cork.

3993. You have been in the habit of going there frequently?—Yes; and I know Crookhaven and Dublin; I have often been in there.

3994. Have you been in Waterford?—I never was in Waterford.

3995. Have you ever been in Wexford?—No.

3996. Or in Carlingford?—No.

3997. Those three Irish ports, Waterford, Wexford, and Carlingford, you know nothing of yourself?—I do not, any further than I know their situation.

3998. Do you know anything of the bar at the mouth of each?—At Waterford I have derived some information from a plan of the place.

3999. But not from any practical knowledge of it?—No.

4000. Dublin Harbour you do know?—Yes.

4001. Supposing you had left Liverpool, and were beating down the Channel and met with a very strong southerly gale, should you, from your knowledge of

of the various ports, bear up for Dublin or go on to Carlingford?—I would go on to Carlingford, provided it was available.

4002. Why so; there is a difference of 50 miles between them?—Yes; but at Dublin Bay there is the lightship.

4003. That objection is so great that you would rather go further on to Carlingford?—Yes.

4004. Supposing you came up Channel and met with a strong northerly gale in the chops of the Channel, you would be obliged to bear up for Milford Haven, would you not?—Milford Haven is certainly under the lee.

4005. Or would you make for the coast of Ireland?—I should prefer the coast of Ireland.

4006. Why would you prefer the coast of Ireland?—First of all, the soundings are good to get in to the coast of Ireland, and it is a weather shore.

4007. Milford Haven is open at all times of the tide, is not it?—Yes.

4008. Whereas the others are not open at all times of the tide?—Then there would be a difficulty in getting up to Liverpool.

4009. Still you want to protect the vessel at the moment, and the life of the crew?—Yes. In case of great distress I should not weigh any harbour, provided I could get into it properly; being wind-bound, or missing the port, I should consider the harbour that would put me in a position to fit me to proceed on my voyage afterwards.

4010. If in mid-channel, you would rather bear up for Cork than for Milford Haven?—If you were in mid-channel you would be in such an open sea that, unless it were a very great gale, I should not bear up at all; but, if I was up at Waterford, I would bear up for Waterford rather than Milford Haven.

4011. You cannot go to Waterford at low water?—That is, provided it were available to get into.

4012. You know nothing of Wexford?—I know that there are banks outside of it.

4013. You have never navigated that port at all?—No; I have never been in a vessel small enough to get in there.

4014. Do you know the coast of Cornwall?—No.

4015. Do you know St. Ives?—No.

4016. Do you know Padstow?—No; I know nothing further than the position of those places. I have been altogether in the foreign trade going these long voyages, so that I have frequented these harbours very little indeed.

4017. Supposing you were going down the Channel and were obliged to bear up for Carlingford or Belfast, and could not reach either, could not you take refuge under the lee of the Isle of Man; would not that be a natural harbour of refuge to you against a strong southerly wind?—If I bore up to Carlingford, I should be so far to leeward that I could not fetch it.

4018. Supposing you were on the first part of your voyage, would you go to Carlingford or to the Isle of Man?—I would go to Carlingford, to have the advantage of the weather shore.

4019. You have not water there at all times of the tide?—No; but I am supposing these harbours to be available.

4020. Mr. *Ewart.*] If I understand you right, although you do not know the harbour of Wexford, yet you know very well the coast all about Wexford, and you would always give it a wide berth in consequence of the sand banks?—Decidedly so; a glimpse of the chart would satisfy any person.

4021. And on that account you would consider it most dangerous to have any refuge harbour where the banks were of that description?—I decidedly think so.

4022. Mr. *Liddell.*] Does your naval experience enable you to speak of the north-east coast of England at all?—No.

4023. Are you acquainted with the Pentland Firth?—No.

4024. Mr. *Clay.*] What is about the tonnage of the vessels that you are in the habit of commanding?—One thousand tons; I have been in smaller.

4025. In round numbers, what are the ship's expenses per day?—From 10 *l.* to 12 *l.* per day.

4026. So that even a moderate toll, with the necessary expenses of pilotage, would in 24 hours, if you went into a port of refuge, be about double the day's expenses of the ship?—It would certainly exceed that.

4027. Mr. *Liddell.*] Was I correct in understanding you to say that, in a south-westerly or north-westerly gale, which you have described as the most dangerous

Mr. *F. Wherland.*
5 August 1857.

winds, Holyhead is extremely difficult to enter, and almost impossible to get out of, except with the aid of steam?—I did not state there was any difficulty in getting into it; it was in getting out of it, when the wind became available to proceed on your voyage.

Mr. *William Bourne*, called in; and Examined.

Mr. *W. Bourne.*

4028. Mr. *Liddell.*] YOU are connected with Liverpool?—I am.

4029. In what capacity?—As a Master Mariner.

4030. Have you passed a considerable portion of your life in that profession?—Sixteen years.

4031. Have you had the command of many vessels in the course of that time?—I have had command for 15 years.

4032. In what trade have you been chiefly engaged?—In the foreign trade; I have been to the East and West Indies, and the Mediterranean.

4033. Will you state what are, in your opinion, the most suitable localities for harbours of refuge, for vessels engaged in that trade, upon the Irish coast?—I should say Carlingford Lough would be as good a harbour of refuge as anywhere.

4034. Will you state your reasons for thinking so?—Because Dublin is rather a bad place to get in, in coming from Liverpool, after rounding Holyhead.

4035. Why is Dublin rather a bad place to get in?—There is the Blackwater Bank for one thing, and you can scarcely fetch with a south-west wind over to Dublin, when it would be a fair wind to Carlingford.

4036. You corroborate the evidence of a former witness as regards the prevalence and the danger of those gales?—I do.

4037. Has your attention ever been called to Waterford?—I have been up and down past Waterford, and once I have been in the harbour.

4038. Waterford is of no use at the present time as a harbour of refuge?—No.

4039. Do you know Milford Haven?—I have been in it once or twice.

4040. Do you consider Milford Haven of any service at present for outward-bound or homeward-bound vessels?—It is of service for vessels in the Bristol Channel, and it is of service to vessels running past Cork, because there is no other harbour but Milford. Some years ago I ran past Cork, and we happened to run past Milford, the weather being very thick, and we picked ourselves up at King Road, near Bristol, and there were seven ships in the same way; whereas, if the weather had been clear, and the harbour available, I could have got into Waterford.

4041. Is the objection to Milford its being upon a lee shore?—No; it is a very good harbour to go in, but it is a very bad harbour to get out of with the wind into the harbour.

4042. It throws you out of your course?—Yes.

4043. Consequently seamen prefer almost keeping the sea to losing the time necessary for making that harbour?—Yes.

4044. Have you ever made any Baltic voyages?—Never.

4045. You cannot speak to the north coast of Scotland?—I have been there only twice.

4046. Do you know anything of the north-east coast of England?—I went to Shields twice, but we had a pilot down and a pilot up from the Downs, so that I am not prepared to speak upon that.

4047. Are there any other localities that you would point out to the Committee, upon the north coast of Ireland, which are desirable as harbours of refuge?—No, I do not know of any other.

4048. You know Holyhead Harbour?—Yes, very well.

4049. Is it your opinion that Holyhead Harbour is likely to be of value to outward-bound ships as a harbour of refuge?—I have no doubt that it is of very great service.

4050. Do you agree with the former witness in the difficulty of getting out of Holyhead Harbour?—Yes, with the wind blowing into that harbour, which it very often does, which a vessel on the Irish coast opposite would make a fair wind down Channel.

4051. Under those circumstances, except by the aid of steam, it would almost amount

amount to an impossibility to get out?—Yes, it would almost amount to an impossibility to get out.

4052. You have heard questions put on the subject of passing tolls for shipping; what is your opinion with regard to the propriety of levying passing tolls for the support of those harbours?—I think a small toll levied on all ships would not be felt much.

4053. I distinguish between a passing toll paid by all ships upon passing and a toll paid for the use of the harbour, under circumstances compelling vessels to make use of the harbour?—Yes, so I understand it.

4054. Will you state your own opinion in regard to the propriety of passing tolls?—I think a small toll, not very much, levied would be better than a passing toll for vessels to go in.

4055. What should the amount be, if levied at all?—I should say so much a ton, such as a farthing a ton, or a penny, or a halfpenny; for those larger ships those harbours would be available, such as Waterford.

4056. Are you sufficiently acquainted with the feelings of the shipping community upon that subject to say that they would be willing to pay that toll?—No.

4057. You merely give it as your own opinion?—Yes.

4058. Mr. *Ewart.*] You agree generally with the evidence of the last witness?—Yes.

4059. Do you consider Waterford, upon the south coast of Ireland, to be the best spot for a harbour of refuge?—Yes, I do.

4060. Do you consider it almost the only practicable place for a refuge harbour?—The only practicable place that I know of.

4061. You have spoken of Carlingford; do you know any other place north of Carlingford?—There is Ardglass up there; there is no other place that I know of.

4062. Would Carlingford be a better harbour than Ardglass?—I should say so; it is more open, and shows the headland so much better.

4063. Would it be better for the prevailing winds on that coast than Ardglass?—The harbours are so near together; with the wind any way from the westward, such as west-north-west, a vessel would lie right down Channel from that side.

4064. Do you know the Isle of Man?—I have never been there; I have passed it close to the Calf lights.

4065. Do you consider that Douglas Bay would make a better, or as good a harbour of refuge as Carlingord?—I should rather think not.

4066. I am speaking of the situation?—I know vessels go there to anchor sometimes; but I do not know much about the bay.

4067. Do you think that the situation of Douglas Bay, looking at the prevailing winds on that coast, would afford a better harbour of refuge than others on the Irish coast?—No. I think the Irish coast preferable.

4068. Mr. Liddell has asked you a question about the tolls in those harbours of refuge; is it your opinion that it would be better to levy a passing toll; that is, for instance, if a vessel leaves Liverpool, she should pay a small toll upon leaving Liverpool, instead of paying anything on taking refuge in the harbour; do you think that it would be better to have a toll of that kind than a toll levied simply when you use the harbour?—I think so.

4069. What is your objection to a toll being levied upon merely using the harbour?—They may perhaps be rather exorbitant in their charges in taking you in, if you want to run in, whereas, if one small toll was levied, you would know exactly what you had to pay.

4070. Would you be at all influenced in very bad weather by the thought as to what the charges would be in the refuge harbour?—No, I should not; I think that any prudent man, in a dark winter's night, for the sake of 4 *l.* or 5 *l.* would rather bear up for the harbour than strain his ship to pieces, and very likely lose her.

4071. You know what I mean by a passing toll?—Yes.

4072. If a toll of that kind was levied, do you think that you, as captain of a ship, would be more frequently induced to avail yourself of a refuge harbour than if a toll was levied simply when you entered that harbour?—No, I should not be induced to go in any sooner than if the toll was levied the other way.

4073. Mr. *Philipps.*] Supposing you are navigating a 1,000-ton ship, do not

Mr. *W. Bourne.*

5 August 1857.

you dislike very much indeed going to any harbour at all if it is possible to avoid it?—If we can keep the sea.

4074. If you can possibly hold to the sea, you will do it with a ship of that size?—Yes.

4075. Nothing is so dangerous as going in and out of harbour with those large ships?—Yes.

4076. There is nothing that you dislike more?—No, and there is a great deal of expense attending it also.

4077. Suppose the expense were thrown aside and you had a free entrance to any one of those harbours, you do not like, as a captain, to go near the land?—No.

4078. How many years have you had experience of the Irish Channel?—About 16 years,

4079. During that time, how often have you run for a harbour, having been caught?—Only once, and we could not get shelter afterwards.

4080. Will you just explain the circumstances?—I was between Tuskar and the Smalls; we were beating about there; we were just a fortnight between Holyhead and the Tuskar in the winter time, and we bore up for Bargie on the south side in Carnarvon Bay; we got in there; it was so very thick that we were afraid to run, and we came out and got on the coast between Tuskar and the Smalls, the wind shifting from the west-north-west, which was a fair wind for us, and we bore up for Dublin after all.

4081. Did you go into Dublin?—No; we got the wind from the north-west, and that drove us back again.

4082. Supposing harbours of refuge had been created at Carlingford and Waterford, should you have been able to have got into either of those harbours under the circumstances you speak of?—Not to Waterford; we could have gone to Carlingford very well.

4083. And you said you were a fortnight beating between Holyhead and the Tuskar?—Yes.

4084. And if Carlingford had been in existence, how much time would that have saved you?—A great deal, not only of anxiety, but of wear and tear of the ship.

4085. And of course you would have been very willing to have paid a toll to have gone into Carlingford to have saved all that?—Yes.

4086. A heavy toll beyond 5 *l.*—Yes.

4087. With a ship of 1,000 tons?—Yes, more than that.

4088. You would pay for the use of this harbour if it was necessary?—Yes.

4089. Sir *Frederick Smith.*] Do you know Holyhead Harbour well?—I was in it once; only once.

4090. You know Carnarvon Bay?—Yes.

4091. Do you know that it was once intended to form a harbour of refuge at Porthdinllaen, in Carnarvon Bay?—I never heard of it.

4092. Supposing there were a harbour of refuge there, would it be more useful to you than Holyhead?—I should never think of going there; it would always be a lee shore with the wind to the northward of westward.

4093. To the eastward of Holyhead is not a lee shore, is it?—Yes, with the wind from the northward.

4094. If you had a harbour of refuge at Porthdinllaen, you would be able to get out there as well as Holyhead, would not you?—You must have the wind more to the northward.

4095. Would you not be able to get out more easily?—It is a lee shore all along; you are scraping along the coast.

4096. Take Holyhead, how do you get out from Holyhead; if the wind is blowing from the north in any way you cannot get out, can you?—The wind from the north-north-east is right into the harbour.

4097. How do you clear the head?—After you get outside.

4098. At Porthdinllaen that is not the case; you go out at once?—I do not know that coast.

4099. What ports do you know on the Irish coast; do you know Belfast?—I have been to Belfast Lough.

4100. How would Belfast answer as a harbour of refuge?—It does very well, but it is a long way up.

4101. Is that the only objection?—That is the only objection.

4102. What

4102. What do you know about Ardglass?—Not much.

4103. Carlingford and Waterford are the two points upon that coast where it is most desirable to have a harbour of refuge?—I think so.

4104. With regard to Milford Haven, you appear to have an objection to running for Milford Haven?—It is an objection.

4105. I suppose one reason is the strong in-draught of the tide?—Yes; there is a strong in-draught up the Bristol Channel, just like a funnel.

4106. At what rate does the tide run?—Between the Smalls and the opposite coast it is from two to three miles an hour, and it increases as you get further along.

4107. What is the total rise of tide in the Bristol Channel; is not it upwards of 30 feet?—I do not know; I know that there is a very great rise and fall; I do not know exactly what it is.

4108. Mr. *Clay.*] Suppose there is a universal toll in all harbours of refuge of 1 *d.* a ton, do you believe that such a toll would practically interfere with the utility of harbours of refuge, by ever deterring captains from entering a harbour of refuge when there was serious need of it?—No, I do not think so.

4109. Mr. *Liddell.*] Do you say that as a fact, or do you say rather that it would not be the duty of captains to take that view of the case; would it not be the fact, that the generality of them would evade the toll?—No one would ever go into a harbour if he could keep out.

4110. Do you think that the payment of a small toll would not deter them, or that it ought not to deter them?—I do not think that it would deter them.

4111. Mr. *Augustus Smith.*] You are engaged in the foreign trade chiefly?—Yes.

4112. Have you often been passing along the south-east corner of Ireland by Tuskar?—Yes, often. We take our departure, and generally our land-fall, after we have made the coast of Ireland further down.

4113. Are you acquainted with the navigation about Tuskar?—Yes.

4114. Supposing there was a harbour of refuge just at that point of Ireland not so far to the west as Waterford, about Greenore Point or Carnsore Point, just within Tuskar, do you think it would be of service to the outward-bound and homeward-bound shipping?—I do not see where you could place one.

4115. You never actually examined the coast?—I know it is full of banks inside of the Tuskar.

4116. Are you aware that there is a place called St. Margaret's Bay halfway between the two points I have named, just straight within the Tuskar, and to which the Tuskar light would be a direct guide?—I have never heard of the bay, but I know there are a great many banks inside.

4117. That is north of Greenore Point; I am speaking of south of Greenore Point and Carnsore Point; you never examined the coast actually there?—No.

4118. But supposing there could be a harbour of refuge there, would not that be a preferable point to Waterford?—I do not know that they could establish one.

4119. Lord *John Hay.*] Are you of opinion that a harbour of refuge placed, we will say, upon the north-east coast of England would or would not be an advantage during gales of wind to vessels which might not even resort to it; might not vessels in going to Newcastle, for instance, if there was a harbour of refuge within the vicinity, say about Sunderland, be likely to go to the coast and try and get in during doubtful weather, knowing that they would be safe because they would have a harbour of refuge to run to?—I should say so.

4120. You think that although a vessel did not go into a harbour of refuge, she might derive considerable advantage from having it to run to in case she was not able to get into the port which she wanted particularly to get into?—Yes.

4121. You think so generally?—Yes.

Commander *Thomas Heard,* R. N., called in; and Examined.

4122. Mr. *Liddell.*] YOU are, I believe, in the Coastguard?—Yes.

4123. On what part of the coast?—On the coast of Durham and Northumberland, from Newbigen-on-the-Sea down to the entrance of the Tees.

4124. Have you been in the navy?—I am a Commander in the Navy.

 4125. Has

Commander *T. Heard*, R. N.

5 August 1857.

4125. Has your attention been directed to the great loss consequent upon the naked state of that coast and the absence of any proper place of refuge in stress of weather?—It has very much, being so much upon the beach riding.

4126. What is the extent of your experience of those coasts?—Four years.

4127. Were you previously acquainted with them?—No, not at all.

4128. Where are you stationed yourself?—At Sunderland.

4129. You can recall some of the severe gales of the year 1854 and of the present year?—Yes.

4130. You are aware that a vast amount of life and property was lost?—Yes.

4131. What is your opinion as to the most desirable locality for a harbour of refuge upon those shores with which you are acquainted?—I think, from my experience and from what I have observed of the number of wrecks, the tendency is for vessels to fall in towards Hartlepool Bay; but I am not prepared to say how far it is desirable for a harbour of refuge, but I do think that that is the locality for a harbour of refuge.

4132. Do you give that opinion from an examination of the Wreck-chart, or from what you have observed to be the habits of vessels?—From what I have observed to be the habits of vessels, and also from the general number of wrecks along the coast.

4133. Do you state, as the result of your experience, that it is the habit of vessels to what you call run in for Hartlepool; I am speaking of the general mass of the vessels sailing up and down, to and fro, on those coasts?—I think that owing to its being a bay there the wind drives them in; but having also the advantage of a beach they very frequently, probably, do run, because it is a well-known fact that on the north-eastern coast of England vessels very frequently put their helm up and run for the beach at high water, purposely in order to save the lives of the crew.

4134. That is for the express purpose of running on shore?—Yes.

4135. Supposing a harbour of refuge to exist in a well-chosen locality, I presume such would not be the case?—It must be the case in so far as the line of coast is very extensive; but no doubt a very large number of vessels would be saved if the harbour were put where I mentioned.

4136. You distinctly point to that as the best place on the coast?—Yes; on a large scale.

4137. Has your attention been directed to any points further to the north?—No, I cannot say that; but I have seen a vast amount of wrecks at the entrance of the River Tyne, and also at Sunderland.

4138. Do you recall the circumstances of the fearful gale in January of the present year?—Yes, perfectly.

4139. Have you taken any trouble to ascertain the facts connected with the losses of the number of foreign vessels that were lost?—I know I had ocular proof myself of the number in the neighbourhood of Hartlepool, in so far as going along the beach shortly afterwards; for a mile and a half or so it was perfectly strewn with vessels. Many of those had foundered at sea and gone to pieces altogether and broken up; but I know that the greatest number did founder running into Hartlepool Bay; they went on shore; and Hartlepool was marked out more strongly than ever as a place for a harbour of refuge; but the vessels tend very much to go on shore in accordance with the way that the gale blows, because very often they get far up along to the northward, and go on shore in running for the entrance to the Tyne. Then, of course, they could not get into Hartlepool Bay, which would be almost as bad, neither being a harbour of refuge.

4140. What do you consider the most dangerous wind that is prevalent in the winter time on those coasts?—I think the easterly or east-south-east winds are about the most dangerous.

4141. Are you prepared to confirm the opinion that has been expressed by another witness, that a south-east wind is not an embaying wind upon that portion of the coast?—I think if vessels were in Hartlepool Bay a south-east wind would be dangerous.

4142. And would be consequently, under those circumstances, an embaying wind?—Yes, I think so, if they were well in. A very light vessel of course we know goes to leeward very rapidly, and I do not think she could get out of the bay.

4143. Is not it the tendency of vessels belonging to that port, and others situated some little distance to the north of it, to keep close rather than to keep a wide

a wide offing?—No; I think they try if possible to get into the ports to which they belong; they are all married people on board, and naturally they will of course buffet the waves as long as they can, and perhaps reach the port of destination.

4144. Do you confirm the opinion that it is the tendency of masters to run to the port to which they belong?—Certainly, if they possibly can.

4145. Do you think there would be any objection on the part of the masters and owners to avail themselves of a harbour of refuge if it were constructed, even though they had to pay a toll for its use?—I think they would avail themselves of a harbour of refuge if it was constructed.

4146. What is your opinion in regard to the policy of levying a general toll upon all vessels passing for the support of those harbours?—I am afraid I cannot answer any of those questions.

4147. Has your attention ever been directed to Runsick Bay, as a desirable locality for a general harbour of this sort?—No; I do not know anything about it.

4148. Mr. *Augustus Smith.*] You are inspecting-commander upon that coast?—Yes.

4149. Have your duties led you to be most on sea or on land?—On land.

4150. You have not been cruising about there much?—No; there is no cutter there.

4151. So that you cannot speak yourself as to where you would wish to run under stress of weather?—No.

4152. Hartlepool is within your district?—It is.

4153. Can you speak at all as to the depth of water there?—I am afraid not, being so little on the water; it is such a dangerous coast, and the only boats that we have are so small.

4154. Do you know a place opposite Sunderland, called Hendon Smooth?—Yes, I know the locality; there are some outlying rocks there.

4155. Do you think that it would be a favourable position for a harbour of refuge?—I can only say that sometimes in gales of wind vessels go on shore very close to the port of destination in trying to get into the harbour, and no doubt a harbour of refuge would be the means of saving a great many vessels and lives if it was constructed there. The same might be applicable to the River Tyne were it practicable to make a harbour of refuge there, because I have known as many as 20 vessels go ashore at the entrance to the Tyne in one gale.

4156. There is this Hendon Rock and another outlying bank there; has that any effect now in breaking the sea, so as to be useable in roughish weather as a place for vessels to bring up and anchor?—I cannot state.

4157. Has it any effect upon the water between it and the shore?—I cannot say that it has; but I think I have heard people say that it has.

4158. What is the depth of the water at the Wear?—There is a dock to the south of the water of the sea entrance there, which has been made within the last two years; they have 23 feet of water over there at spring tides; then they do not get as much as that, within four or five feet, in the entrance of the river.

4159. Sir *Frederick Smith.*] What extent of coast are you acquainted with?—About 50 miles south of Newbegin.

4160. There is what seamen call a clear sea approach to Hartlepool?—Quite so.

4161. And there is very little run of tide there?—Very little, so far as I know.

4162. There is a fine beach, upon which vessels that miss the harbour can run ashore?—Yes; there are some outlying rocks, but I think generally they are avoided; the vessels mostly get ashore.

4163. And I believe there is very good holding-ground, is there not?—I am not prepared to say; I only know that, during the heavy gale which has been alluded to, a Swedish vessel hung on to her anchors, and weathered the gale out.

4164. I suppose vessels of large tonnage could go into that harbour at Hartlepool Bay?—It depends upon the extent to which they carry the piers out, for I believe the water is rather shallow.

4165. Mr. *Augustus Smith.*] Have you been upon any other part of the coast, in the employ of the Coast Guard?—No.

4166. Sir *Frederick Smith.*] It is at the head of the bay, is not it?—Not exactly; Hartlepool is in a little bight, at the northern side of the coast.

Commander *T. Heard*, R.N.

5 August 1857.

4167. The dangerous winds are north north-east?—I think east north-east to east south-east; that makes a dead lee-shore.

4168. In that case Hartlepool would be to leeward of all the coal ports?—Yes, with the wind to the north of east.

4169. Lord *John Hay.*] Can you say whether a large portion of the wrecks which have taken place at the mouth of the Tyne and other ports have taken place in consequence of vessels running in when there was not water enough, when they might have been saved by keeping to sea?—I do not think they could have kept to sea, owing to the sea being so very heavy, and the vessels having been a considerable number of days at sea, and the men being worn out; but from coming in on the land, and the ebb-tide running out, as they cannot carry much canvass, they frequently go on shore on the Herd Sand. I believe they carry as much canvass as they possibly can, but it is insufficient to carry them into the river.

4170. I am referring to vessels caught in a gale of wind at sea, and running for those ports; are not a large proportion of them lost in endeavouring to get into harbour, when they might have been saved by keeping to sea instead?—No; I think most of the vessels that are lost are light ships that come up from the southward. It is true that occasionally a gale comes on, and loaded ships go to sea, and sometimes they come on shore; but most of the vessels that run on shore are light vessels; they run for the entrance of the Tyne, and, owing to the insufficiency of the canvas which they carry (they carry as much as they can); but being unable to manage the ship under more canvass, they broach to, and go on shore at the Herd Sand.

4171. Then they could not have been saved by keeping the sea?—I think not; I think the men could not work them; they go to leeward so rapidly, and the men are worn out.

4172. Have you any doubt about the superiority of Hartlepool as a place for a harbour of refuge to the other parts on the coast?—Only so far that I think there is a general tendency for vessels to sway down to that part of the coast, owing to its being in a bight.

4173. Then you consider that, with one of these easterly or east-south-easterly gales, the position of the ports to the northward of Hartlepool is very much better for getting off on the starboard tack?—Yes, certainly, if the wind is to the southward of east.

4174. Then, supposing the wind was to go round to the northward sufficiently to enable vessels to go off the shore upon the port tack, would the vessels to the northward of Hartlepool and Sunderland not be able to get off upon the port tack better than they would if they were off Hartlepool?—Undoubtedly.

4175. It would be in consequence of the difficulty that vessels off Hartlepool would find in clearing the shore off Whitby?—Yes; or their being so much further to windward.

4176. You stated that the vessels commonly run on shore for the purpose of saving the lives of the crew; do you mean at the risk of the destruction of the vessel?—Yes.

4177. Merely to save their lives?—Yes.

4178. Therefore, the sands which are so convenient as you describe, are merely convenient to the extent that ships are able to save the lives of the crew?—Yes.

4179. But you would not consider that a very safe proceeding?—No.

4180. Have you seen the works at the mouth of the Tyne?—Yes.

4181. Have you examined the works?—I cannot state that I have, beyond a general glance at them; I know pretty well the way the piers will go.

4182. Are you aware that, according to the intention of those who think that those piers will convert the mouth of the Tyne into a harbour of refuge, they propose that the vessels that run in for refuge should run a considerable distance up the river into the anchorage?—Yes, I should think so.

4183. Would you consider that where vessels coming in for refuge had to run a considerable distance up the river, that would be a good description of a harbour of refuge?—I am afraid not, in so far that I think, from the rapidity of the tide in the River Tyne, very often vessels go ashore not being able to get over the bar, but vessels very often make the land on a falling tide; but, if the wind should happen to be at all to the north-east, from the way that I see they are running out the

the piers, this northern breakwater at the entrance of the River Tyne would afford an immense protection to vessels entering the River Tyne.

Commander *T. Heard*, R.N.

5 August 1857.

4184. Are you aware that it is supposed the bar will be removed, in consequence of the formation of these proposed works, by the natural action of the water?—I do not think so, without the aid of dredging; I have only the experience of Sunderland to go by, and there is still a bar there.

4185. Mr. *Liddell.*] Are you aware that there is a perceptible difference in the state of the bar of the Tyne already, in consequence of the works?—I think I did hear something of that sort; I cannot say from my own knowledge.

4186. Lord *John Hay.*] I wish to know whether it is your opinion, that where vessels running into a harbour, like that in the Tyne, have to go a considerable distance up the river before they anchor, that description of harbour is a good description, or should not a harbour of refuge be one in which vessels should be able to get in easily and out easily?—Undoubtedly, one that a vessel should be able to get in easily and out of easily is the best for the general purposes of a harbour of refuge.

4187. So that you do not approve of a harbour of refuge generally where vessels have to go a considerable distance up a river?—No, certainly not, in so far as they must lie idle there till they can get out.

4188. Is there any great difficulty in getting out of the Tyne?—There is no great difficulty; they use steam tugs to any amount.

4189. But without the use of steam tugs?—I think with the wind blowing on the land there certainly would be; the working distance is very small.

4190. Do you mean that you could not back and fill in the river?—Yes; that has been done in former times.

4191. Is there any considerable difficulty?—I fancy not; it is a well known place for backing and filling, but on all occasions even the smallest vessels of 40 tons are towed out by steamers.

Veneris, 7° die Augusti, 1857.

MEMBERS PRESENT.

Mr. Clay.	Mr. Lowe.
Mr. Dodson.	Mr. Macartney.
Mr. Ewart.	Mr. Philipps.
Sir Robert Ferguson.	Mr. Augustus Smith.
Lord John Hay.	Sir Frederick Smith.
Mr. Kendall.	

THE RIGHT HONOURABLE ROBERT LOWE, IN THE CHAIR.

Mr. *John Dunning*, called in; and Examined.

Mr. *J. Dunning.*

7 August 1857.

4192. *Chairman.*] WHAT is your profession?—I am the private Engineer to the Middlesborough Estate, which has a considerable frontage on the River Tees, and also the Surveyor to the Middlesborough Corporation.

4193. Have you turned your attention to the question of the construction of a harbour of refuge somewhere in that neighbourhood?—I have.

4194. Have you formed an opinion where that harbour of refuge should be construct d?—Yes.

4195. Where do you think it should be?—In the Tees' Bay.

4196. Will you specify the exact place?—Yes, I have a plan here (*producing the same*) which will explain my views to the Committee.

4197. Will you explain the site, and your views connected with it?—I propose to construct a breakwater, reaching from a little to the north of the eastern end of the Redcar Rocks to a little to the east of the Long Scar, near Hartlepool, which would completely protect a large area of 3,600 acres, and would give a depth to 2,400 acres of from 20 feet to 40 feet at low water spring tides, to 800 acres of from eight feet to 20 feet at low water spring tides, and to 400 acres

Mr. *J. Dunning.*

7 August 1857.

400 acres of from eight feet to nothing at the sands. In connexion with that I propose also to put a breakwater at the Tees mouth, so as to divert the course of the stream more to the east, as shown here in red. The present channel runs to the north; the consequence is that a bar is formed a little to the north-east; and breakers are formed over that bar, which at present make it dangerous to ships entering. This breakwater would completely remedy that, and confine the channel to one course, which would enable vessels once taking refuge in the outer harbour to go still further up, and a larger number might be accommodated, equal to something like another 1,000 vessels. The breakwater that I propose would be five miles long, to be constructed upon a good bottom, which is there very nearly level, and at 40 feet depth at low water; it is a good clay, and is very good anchorage ground. The breakwater I propose to construct of the refuse slag from the blast furnaces of the district, cast into blocks of 20 tons each. There is a very large amount of slag now produced in the vicinity, and when it is properly cast it makes a very strong block of material, quite equal to the work proposed to be executed with it. It is now very much used in river works, and is found to answer extremely well. The Committee will see that the proposed work will provide protection both from the north-east gales and from the south-east gales. I also propose to blast up part of the rocks called the West Scar, at Redcar, so as to allow of a south-eastern entrance. That at present is one of the most dangerous rocks upon the coast. I have myself seen five or six vessels go upon those rocks at once in a storm, and be all dashed to pieces. At this point I refer to, high water covers it; it is called the Luff Way, and is safe to vessels of ordinary draught to sail over at high water, but at low water it is bare partly. I therefore propose to blast that portion up, so as to allow a good entrance at any time of the tide. I believe then that harbour will be as good as it is possible to get upon the east coast, and will be perfectly safe in all weathers.

4198. Mr. *Augustus Smith.*] Can you point out the plan projected at the Redcar Rocks?—The proposition of Mr. Brooks is to run a breakwater on the top of those rocks, and curve a little to the east, and another breakwater upon the flashes here, the more southern rocks, and turn out a little to the north-east, so as to make a bay betwixt the rocks.

4199. *Chairman.*] You prefer your plan to Mr. Brooks's and Mr. Rendel's plans?—I do, because it is a much larger scheme, and would render the harbour capable of accommodating every class of vessel, from a man-of-war down to the smallest vessel that floats.

4200. Do you prefer it on any other ground besides the size?—It will completely answer in all weathers and in all gales.

4201. Will not the other schemes answer in all weathers?—I think not.

4202. Neither of them?—The Tees would answer.

4203. Which is the Tees?—The breakwater at the Tees mouth.

4204. Whose is that?—That was proposed by Mr. Bald, under the Tees' Conservancy Act of 1852. The Admiralty at that time took powers to make that breakwater.

4205. Have you estimated the cost of these works?—I have.

4206. What have you estimated?—The cost of the breakwater will be 924,000*l.*

4207. What is to be the length of the breakwater?—Five miles, in 40 feet water at low water.

4208. How do you propose to pay for it?—I propose that the Government should pay for it, as it is a national question; at least I think it ought to be considered in that light along the east coast.

4209. Would you propose to impose any toll to reimburse the Government?—I think it would be a question that might admit of some little difference of opinion as to the best way of paying for it; but it would be one way or the other, either to vessels using it or as a passing toll.

4210. Lord *John Hay.*] Have you had any experience in constructing works of this sort?—I have, in the River Tees.

4211. What is the largest work you have constructed?—Not very large; there are no very large works in the Tees, but I have seen works of this kind constructed; and examined them too.

4212. You have never been engaged upon them?—No, I have not.

4213. Does

4213. Does not the figure you have given appear to you a very small estimate for a work five miles long?—I think it is on account of the material that I propose to use; that is the difference. The great cost I believe in other works is in putting the material together; here I get it in sufficiently large blocks to require no cementing. I should simply make it a rubble breakwater, and not go to the expense of putting the blocks down with a diving bell or any other apparatus of that kind.

4214. In the proposition presented to the Committee there has been no such proposition as you speak of in putting the parts together, and the expense has been very much greater than what you state; are you quite sure you have fully considered this question?—Yes; I believe the great difference of cost will be in the material. Here we have refuse material which the owners of the works will be glad to cast into blocks for us; we shall have nothing to do but to pay the carriage and to put it into the breakwater.

4215. How would you propose to construct the breakwater?—I should run a railway down to the edge of the sea, have waggons that would carry blocks of 20 tons weight, run a waggon at a time on to a barge, take it out on to the site of the breakwater, and pitch it over into the sea, having of course buoyed its position.

4216. Do you think the works of the Tees could be constructed at a cheaper rate than they are at Portland, where they have the material on the spot?—I think we could construct them here as cheaply, or cheaper, than at Portland.

4217. You think that you could place these blocks in their position cheaper than you could, supposing you took the materials from the cliffs in the immediate vicinity of the works?—I think so; because we get the whole of the blocks in 20 tons weight, or something very near to 20 tons.

4218. How far from the coast?—About five or six miles, with a railway right down to the point.

4219. What supply could you insure of the material?—There are about 30 furnaces in the immediate district, each of which turns out from 30 to 40 tons a day.

4220. Would you consider that you would be conducting the work with proper rapidity, and in an efficient manner, if you put in only 30 tons a day?—Yes, 30 tons per furnace per day, because as soon as we got the first mile of that breakwater made it would afford protection for a certain number of vessels in those gales, and it would become a harbour of refuge of greater extent as we went on with the works, and the works would not interfere with the use of the harbour.

4221. Which end of the breakwater would you begin at?—At the Redcar end; they have no slag upon the other shore at present.

4222. You are connected with the Tees entirely, are you not?—Yes.

4223. Do you recommend these works entirely upon national grounds, or do you also regard the benefit that would be derived to the place itself?—No, I recommend them upon national grounds, because the Committee will see that the proposed plan would benefit the whole of the ports.

4224. In what way?—It makes a harbour of refuge for the whole of the northern ports; it is the most southern point, and I think that is the proper point; because the ships requiring refuge most are those going to the north, generally speaking.

4225. For what reason do they require refuge most?—They are the large fleets of colliers; if you provide it at the most southerly point, they have a harbour of refuge on their way home; but if you provide it at the north, vessels might wish to go into Hartlepool or Seaham, and if that harbour was further to the north, they would have to run past their port before they got to the refuge harbour.

4226. Supposing it could be shown that, by spending so large a sum as 900,000 *l.* in improving the other ports, do not you think that that would be a better plan than spending so large a sum in one particular spot?—I think it would be advantageous to improve the other ports; but, taking it as a national question, I think we should have one large harbour of refuge entirely independent of any port whatever.

4227. You say this breakwater, as you propose to place it, will be most useful for colliers; why do you place it in such very deep water?—So that it will

Mr. J. Dunning.

7 August 1857.

accommodate every class of vessels. It will accommodate Her Majesty's fleet; and I understand the Admiralty are really anxious to have a place somewhere on the north-east coast, and this would not only accommodate the mercantile fleet, but it would accommodate the navy as well.

4228. Are there any very great facilities for coaling there?—There are. They might coal at three or four points if they so wished. On the Yorkshire side the coals come down from the Bishop Auckland coalfield, and on the Hartlepool side from the Durham coalfield. Then, upon the mud lands, any works that may be required can be constructed inside the river mouth, where it is perfectly still water.

4229. Do you not think it extremely probable that the harbour would fill up after the breakwater was constructed?—No, because the current comes right through it; the set of the flood tide is in the line of the breakwater; it would come in at one end and go out at the other

4230. What would be the strength of the current there after the breakwater was placed there; it would have a decreasing influence, would not it?—It might, to a certain extent; but the openings are so wide at each end.

4231. What is the direction of the breakwater, what is its bearing on the compass; is it south-east and north-east, or south-south east and north-north-west?—I believe about south-east and north-west.

4232. Supposing there was a gale of wind from the eastward, or say east-north-east, do you suppose that a vessel would be able to come into that harbour?—Yes.

4233. At the northern end?—I think she might get in at the northern end into the shelter.

4234. With the wind at the east-north-east?—Yes, vessels might get in at the south entrance, but at the north entrance they would be covered from the stress of weather by the point of the breakwater; they would run for Hartlepool Bay if they were really mid way of the breakwater, but if they were at all to the south of that breakwater, they would run in for the east entrance first at Redcar Rocks.

4235. Would it be of any use at all, supposing they were not able to fetch to the south-east end of the breakwater?—Yes, I think so; they could still run so as to get under cover of the point nearest to Hartlepool.

4236. Do you not think there is a very great objection to a breakwater of such very great length; supposing a vessel were coming in to get under cover of that breakwater, and happened to miss the south-east end, is it not a great disadvantage that the breakwater should be so long that she would have to run to the other end, and then very likely not be able to fetch in?—There might be a disadvantage in that way; but I think the opening is so wide, and the position of it such as regards the coast, that she would have no difficulty whatever.

4237. The north-west end is very close to the shore, so that a vessel would not be able to stand on after she got round the point a very great distance; she would just barely be able to get round the point and let go her anchor?—Yes, easily if she was to the north of it at the time; but all storms give a little warning.

4238. So that when you calculate the space that there is for vessels to take cover, you admit that, in a gale of wind, only a very small portion of that would be available, from the fact that vessels would not be able to lay into the anchorage, unless they came in at the weathermost end of the breakwater?—Yes, but that difficulty would very seldom arise; storms always give a certain amount of warning; and it could never make that difference if a storm was coming on for the length of five miles, at the very outside.

4239. You must admit, at the same time, that in very bad weather you run in for the land, and cannot see where you are till you are very close?—Just so; but I believe there would be no difficulty whatever in taking the most southerly entrance; at present vessels can run for the Tees, and very often they are safe for the Tees, and it is a much narrower entrance than I propose to give.

4240. But when they run for the Tees they run generally with the wind right aft; in this case the space in the harbour is very narrow and very long, and the difficulty vessels would find would be to lay into the harbour, having got round the point; unless they got round the weathermost they would have very great difficulty in laying into the harbour after they got round the leewardmost?—Yes,

—Yes, but I do not think they would have that difficulty in getting in; in a storm they often have but little offing; they are nearer the shore, and these entrances are such as they can take when they are almost close to the shore.

4241. What distance is the north-west end of the breakwater from the shore?—About a mile and a quarter; but the breakwater at the mouth of the Tees would be a very great protection, and make a very good harbour of refuge for all mercantile purposes.

4242. Sir *Frederick Smith.*] You propose to put this breakwater of yours in 40 feet water at low water?—Yes.

4243. What is the rise of the tide?—Ordinarily about 14 to 16 feet.

4244. Therefore it would be in 56 feet of water at high water spring tide without being above the surface?—Yes.

4245. What slope do you give?—Outside, 3 to 1; inside, 1½ to 1.

4246. Have you computed the quantity of cubic yards or tons that would be required?—I calculate it at so much a ton; I take the total number of yards in each yard run; there are about 1,630 cubic yards in each yard run of the breakwater.

4247. You propose to collect the slag at a distance of about five miles from the breakwater?—Yes.

4248. And then to bring it down by a railway to the water's edge, and then barge it?—Yes, put on a waggon, and all together on to a barge; take it out to the breakwater, and just pitch it in.

4249. What do you reckon as the cost of the slag when first received?—The slag can be got for nothing in the first place.

4250. You have to cast it into blocks?—Yes.

4251. What would that cost?—I calculate running and moulding would cost 3 *d.* a cubic yard; and the cooling and labour loading would be 3 *d.*; the carriage would be 3 *d.*; the carriage again from the shore to the point where it is sunk I calculate at 3 *d.*; and then the interest upon the barges and machinery, and wear and tear, I put at 3 *d.*; making, all together, 1 *s.* 3 *d.*

4252. In point of fact you could not work in bad weather?—No, we could not work in bad weather; but then, at that point, we should have quite sufficient accommodation for storing any quantity that is reasonable.

4253. Do you imagine you would obstruct your entrance by what you propose to do upon the Scars?—I do nothing upon the Scars; that is another scheme for altering the Tees' mouth, making it point to the south-east, instead of to the north-east as now.

4254. Do you not imagine that upon the southward side of the Tees a spit would run out at the right bank of the river?—I do not think so.

4255. Does not grow?—No, it does not grow.

4256. Mr. *Augustus Smith.*] You have spoken of these blocks of slag; what is the slag to be compounded with; what cement?—No cement at all.

4257. What holds the block together?—The slag comes from the furnace in a liquid state.

4258. In the size of 20 tons blocks?—Yes, they are run in that size.

4259. What cubic measure do you reckon each of those blocks will be?—I reckon a yard to the ton; that would be about 20 cubic yards in each block.

4260. What is the depth of water that you reckon there will be at the north entrance at low water?—Twenty-eight feet.

4261. And what do you reckon will be the width of the breakwater at the base?—The width of the breakwater at the base is 390 feet, that is 130 yards.

4262. And what will be the width at the summit?—Sixty feet.

4263. Have you calculated on making any wall on the summit on the outer side?—No; just simply a breakwater.

4264. It is to be left all in these blocks, rough?—Yes; but I have calculated for placing the top blocks when they come above low water; they would be put then with some greater regularity than simply tipping them over.

4265. You have not reckoned upon constructing it as a mason wall just above low-water mark?—No; not to expend labour upon putting the blocks together at all. I believe it would make a sufficiently strong wall for protection to the shipping by simply roughly placing them.

4266. You give this line here to your breakwater; would not that, supposing

Mr. *J. Dunning.*

7 August 1857.

the sea was strong in this direction, lead in a good deal of sea?—No; that is the line of the current; there would be a little perhaps on that head; it might bring the sea in a little more, but there is space enough there to go in with safety.

4267. With a north-east wind would not a heavy sea be introduced there?—Not more than would be carried properly; nearly all the way along the breakwater the depth of the water is about the same, 37 to 40 feet.

4268. Mr. *Ewart.*] Did you say that you propose to tip these large blocks into the sea?—Yes.

4269. Do you believe that they would consolidate, being tipped over in that way?—Yes, I do; they would not slide; the slag blocks hold together remarkably well, much better than common rubble stone.

4270. I cannot understand, with square blocks tipped over, how you can get the whole mass to become consolidated?—I think the weight of the blocks one upon another in that way, will make it so that no sea will break it.

4271. What is the width of the eastern entrance?—About half a mile; from half to three-quarters from the Redcar rocks.

4272. What would be the depth of the blast?—I propose to blast out 20 feet at low water from the Luff entrance.

4273. Lord *John Hay.*] Can you state what will be the weight of the whole mass of which this breakwater will be constructed?—Nearly 15,000,000 tons.

4274. What will be the total cost of placing a ton in its position?—One shilling and three-pence. I have taken the yard as the ton throughout.

4275. Would you make the greater part of the breakwater of this slag?—I would make it entirely of slag.

4276. What time do you suppose it would take to make it?—I suppose it might be run out in perhaps four or five years, sufficient to afford a very good protection.

4277. When do you suppose it will be completed?—I have not calculated as to the time it would take to make it complete, because of course it is liable to fluctuation to a certain extent as regards the supply of slag.

4278. I think you said that the supply of slag was about 30 tons a day?—Thirty tons per furnace per day; about 900 tons per day, but I should take it at 500 tons per day.

4279. So that the Committee may ascertain exactly by dividing the quantity how long it will take?—Yes; providing the supply keeps up regularly, which as long as the iron trade should be brisk, would be the case.

4280. Supposing that trade should fail at all, is there any material in the vicinity by which you could continue the work?—Yes; there is stone, but it would be at a much greater cost.

4281. What sort of stone is it?—The freestone, which is within a couple of miles.

4282. The material would be expensive, would not it?—Yes; no doubt of it, but not so expensive as to construct a work upon the Durham coast.

4283. *Chairman.*] I think you said you could lay 500 tons a day if the trade kept well?—Yes; we could put down that.

4284. And you say it would require 15,000,000 tons?—Yes.

4285. Fifteen millions divided by 500 would give 30,000; is not that so?—I have not tried it, but probably you are correct.

4286. Therefore it would take 30,000 days, supposing you worked on Sundays, to lay down this breakwater?—Yes.

4287. What period of time is that?—A very long time; I have assumed that I get 500 tons per day; the capability of the furnaces of the district at present is that; but they are continually on the increase, and we should therefore get a very much increased quantity.

4288. Supposing you did not work Sundays, I think it would take somewhere between 80 and 90 years?—Yes, perhaps it might; but we could double that even now with the quantity already produced, and the furnaces are continually upon the increase in the district; and the breakwater would begin to assume the shape of a harbour of refuge when the first mile was constructed.

4289. Lord *John Hay.*] I understand you that the shortest period within which it would be likely to be finished would be between 30 and 40 years?—I should think in five years we should have a mile of breakwater.

4290. I understand that the breakwater would not be completed under 40 years,

40 years, even if you had 1,000 tons a day?—No, it would not; but there would be a very large harbour of refuge when it was half completed. Mr. *J. Dunning.*

4291. Still it would not be complete?—It would not be complete. 7 August 1857.

Mr. *John Fowler*, called in; and Examined.

4292. *Chairman.*] ARE you a Civil Engineer?—Yes.

4293. Have you paid attention to the subject of harbours of refuge?—Yes, I have. Mr. *J. Fowler.*

4294. Have you formed an opinion as to what place would be suitable for a harbour of refuge?—Yes.

4295. Will you state where it is?—In Tees' Bay.

4296. In what position in Tees' Bay?—At the entrance of the Tees.

4297. Will you describe to the Committee the works that you would recommend, and the effect that they would have?—I propose to construct a pier on the north side of the entrance to the Tees. The depth on the bar varies from 7 to 12 feet. The position also of the bar shifts occasionally. The object of the pier is to give certainty to the depth over the bar, and also to its position. A great part of the power of the estuary of the Tees is lost to the bar in consequence of passing over the North Gare; that is, the sands on the north side of the Tees. This pier will prevent its passing over, and consequently will throw a greater scour upon the bar, and thus increase its depth perhaps to 15 or 18 feet at low water spring tides; the average depth at low water would be about 20 feet. The harbour, as intended, would be thus available for the mercantile shipping upon the coast at nearly all times of the tide.

4298. Mr. *Dodson.*] What is the depth at low water spring tides now?—The depth at low water spring tides at present is about 9 feet, sometimes it is 12 feet. The necessity of the harbour is immediate, and the time which would be required to construct this pier would be about 11 months; a harbour of refuge would thus be formed, supposing we had power to commence now before the winter of 1858; the position of the entrance would then scour out the anchorage within to a considerably greater extent than is the case now; the lower pool has a depth of water varying from 12 to 40 feet, with an area of 50 acres. The form which I propose to give to the channel within would scour out this lower pool in the only direction in which it is capable of being scoured, that is towards the north, which would be under the shelter of this pier; the bran sand is high, and would shelter the anchorage within from the south-east gales; the improvement of the inner harbour would render four miles of the Tees available for ships to lie there which had sought shelter within; at a point called Jack-in-the-Box, which is about three miles above the lower pool, the depth at present is about 12 feet, and it would gradually increase down to the entrance of the lower pool, where the depth would be about 25 feet. The cost of this breakwater would be about 70,000 *l.*

4299. Lord *John Hay.*] Does that include the piers?—Only one; this one (*pointing to the same*) will be 11,000 *l.*; as that is an inner work, and would be for the benefit of the local trade, that is proposed to be done by the Commissioners.

4300. Mr. *Dodson.*] You calculate on increasing the depth at low-water spring tides from nine feet to 18 feet, simply by the additional scouring force that you would give?—Yes; a great quantity of the flood and ebb tide passes over here, which is useless to the bar; whenever the bar is stationary in one place the depth increases to 12 feet, then the width increases and it shifts away to the north-westward, and the depth is not maintained till it comes to this most westerly point, and then the depth rises to 12 feet again, and then this eastern end breaks out; it does so periodically; it broke out in 1832; it broke out in 1839; it broke out in 1848, and now it is breaking out again at the northern channel.

4301. Lord *John Hay.*] Do you advocate this plan with a view to the interests of the Tees, or do you advocate it for national purposes?—The water upon the bar of the Tees is quite sufficient for the trade at present; those who know the Tees about there know how to run in.

4302. Will you state the amount of accommodation which your proposed work would give to shipping resorting to the harbour as a harbour of refuge?—It would accommodate about 400 sail, that is running in without order with

Mr. *J. Fowler.*

7 August 1857.

a depth of from 12 to 40 feet. We have moorings down here in the present course of the channel where we moor vessels fore and aft, and were moorings laid down here, and the space properly berthed, it would accommodate perhaps 1,500 to 2,000 sail.

4303. Is not this rather a novel scheme of making a work for the purpose of deepening the water in a river?—No.

4304. Where has a similar work been constructed; what experience have you had of such works?—We have at present constructed some works here at this point (*pointing to the plan*) on Mr. Calver's survey of the Tees, and we have constructed part of this wall here, and at this point there was a height of four feet of sand at low water, and we have now 12 feet depth at low water, and we have shut up this channel altogether, and have changed the course of the channel, and have continued that depth for the whole length of our works; and then again we have done a temporary work here (*pointing to the plan*). There were only eight inches of water, and before the works were completed, there was more than 12 feet. The last time I was down there with a 12-feet sounding rod, I could not fetch the bottom.

4305. You think that you have had sufficient experience to enable you to say that a work of this description might be constructed?—Yes.

4306. Do you not think that that pier might create some bank there by the intercepting effect that it would produce?—No, I am confident that it would not, because the flood tide is an overfall into the Tees, and there would be no commotion at the Lishead, because the set of the ebb current from the southward is past the end of it, and the sea is encroaching in the Tees' Bay. On comparing the early survey which we have, that is in 1762, with Mr. Calver's survey of 1853, you will find that the Tees' Bay has deepened; that is, it has come upwards about a mile and a quarter.

4307. Would the construction of this work be of any value to the shipping at Hartlepool and the other ports?—Of very great value.

4308. Do you not think that the very large amount of shipping which there is in the mouth of the Tyne would give that port a greater right to have a harbour of refuge than the Tees?—The shipping of the Tyne is very important and very extensive, but a harbour of refuge ought not to be constructed in the Tyne, because vessels do not leave the harbour except when there is some prospect of proceeding on their voyage. Now vessels going out of the Tyne would have reached as far as Tees' Bay, and if they were to the north of Flamborough Head they would come to the Tees, as it would be the place of easiest access; and if they were going to the northward they would have passed as far as Berwick, and they would naturally run for the Firth of Forth. That is the reason why the proposed work would be of more benefit to the trade northward of the Tees than to the trade of the Tees itself.

4309. Mr. *Augustus Smith.*] About a mile from the shore is the bottom getting deeper?—I do not think there is any difference. I think it is about the same.

4310. Lord *John Hay.*] Did I rightly understand you that this guiding wall will only cost 11,000 *l.*?—Yes.

4311. What is the length of it?—Fifteen thousand feet.

4312. What is it to be constructed of?—Of slag.

4313. Why should the proposed pier cost 70,000 *l.* if it is so very much shorter; is it in deeper water?—Work within is much cheaper than work out on the sea, and the work constructed here will stand at less than 45 degrees; the outer slope of the pier will be three to one.

4314. What is the length of the proposed pier?—Two thousand one hundred yards.

4315. Have you had experience in constructing works of that description, so as to enable you to form an accurate estimate of the cost?—I have formed works in the lower part of the Tees, and I know the bottom; I have had experience here with slag for the last three years, and I know the bottom where the pier is to be constructed; I superintended the boring when the surveys were made; and I take the slope from the Plymouth breakwater and other breakwaters that have been constructed in a similar manner.

4316. Do you suppose that it would be easy to find anyone to take a contract to form that work for 70,000 *l.*?—I have not the slightest doubt of it.

4317. Within

4317. Within one year?—Within one year; there would be perhaps two or three months expended in making the barges to transport the material; and if it could not be stored here during the time they were being constructed, it would take nearly 11 months before we could obtain the quantity to construct it.

4318. Supposing it was determined to construct these works, would you propose to construct them at the same time, or one after the other?—I would construct the pier in the first place, because it would be the most beneficial; this other work is only to increase the anchorage; and the outer pier would increase the anchorage at the Fifth Buoy Pool to a considerable extent.

4319. You admit that, until the guiding wall was constructed, the pier would be of no use as a harbour of refuge?—No.

4320. Then what is the object in making the wall?—To increase the accommodation. At one time the channel did run out in this direction, and about 40 years ago it changed more to the northward, and at the time when the entrance went out in this direction the pool was much larger than it is now; it was scoured out to the depth of from 30 to 40 feet in consequence of the current making a more direct course outwards.

4321. Have you obtained the opinion of seamen upon that part of the coast upon your plan?—Upon this part of the plan, which was first proposed, in 1831, by Captain Slater or Mr. Mossman.

4322. Are they both seamen?—They were both seamen; Captain Slater was the Admiralty surveyor; Mr. Mossman is haven master at Hartlepool; pilots and others have occasionally brought forward the same scheme.

4323. Mr. *Augustus Smith.*] The wall in fact would be upon what is now the bed of the main channel?—Yes, it would cut through the bed of the main channel in two places.

4324. What would be the effect on the southern side of this wall; would this all bank up?—No, a certain extent of it would, but it is not intended to raise it to any great height; the Admiralty restrict us to five feet in the works that we are now constructing.

4325. Above the level of the sea?—Above the level of low water.

4326. What is the reason for that?—It is to prevent any filling up of the estuary; they consider, and in my opinion consider justly, that the Tees depends principally upon the tidal water. The tidal water that flows into the Tees every 16 feet flow is equal to 120,000,000 cubic yards, that is equal to 480,000,000 cubic yards in the 24 hours, passing over the bar. The average quantity of land water passing over the bar is under 2,000,000 cubic yards.

4327. Is not this wall intended to be above five feet above low water?—The inner guiding wall is not. I may mention that the Admiralty have been all along in favour of this breakwater, and they got a permissive clause put into the Conservancy Act, permitting them when they saw fit to construct this breakwater. It has been advocated more by parties not connected with the Tees than by the conservators of the Tees.

4328. What quantity of material will this work take?—The pier will be 2,100 yards long; three-fourths of that length will average 20 feet in depth, and one quarter will average 36 feet; the width at the top will be 12 feet, and the outer face will slope three to one; the inner face one to one; and the total quantity of material used will be 385,700 cubic yards.

4329. Do you reckon a cubic yard a ton?—I calculate it as a ton and a half.

4330. How many tons will that give?—Nearly 500,000 tons, I believe. From the experience I have had in constructing these works, I am able to state what the cost of this work will be. The towing of the slag will cost 2*d.* per ton; we get it done at present at 1½*d.*, but the distance will be a little farther, and consequently it will cost 2*d.* per ton; raising out of barges, and running from Snook Point to the work will cost, including engine, that is, lifting, 3*d.* per ton. I propose to give the makers, that is, at the furnaces, for extra trouble that they may have in running the blocks and loading, 5*d.* per ton; the total cost per ton will then be 10*d.*, which is equal 1*s.* 3*d.* per cubic yard.

4331. How many tons a day do you think you could lay down?—There are 29 furnaces at present in blast on the Tees, and there are four others in course of erection, and I believe that there are six others proposed to be constructed; from inquiries that I have made of the iron masters I find that the quantity of

Mr. *J. Fowler.*

7 August 1857.

slag that they make every 24 hours is equal to from 40 to 48 tons; I have taken the quantity at 40 tons per day.

4332. Lord *John Hay.*] That is during a good time of trade? —Yes, when they are all in blast.

4333. Mr. *Ewart.*] Could they cast 40 tons a day?—They sometimes cast, when they are running the best iron, about 48 tons each furnace in the 24 hours.

4334. Could they mould 40 tons a day of this slag?—Yes.

4335. Mr. *Augustus Smith.*] This slag appears to be much heavier per cubic yard than any stone or rock?—Yes; from the weight I have taken it runs about 20 feet to the ton: the quantity that would be obtained per week, calculating from 40 tons, I have taken at 9,500 tons per week, which would be sufficient to construct the pier in 11 months, supposing the 33 furnaces that are now in blast, and those which are being erected, and those which are proposed to be constructed, were all at work. The furnaces work seven days per week.

4336. Mr. *Ewart.*] Are they casting all Sundays?—Yes.

4337. Lord *John Hay.*] How long would it take at that rate to produce enough material to complete this work?—It would take 11 months to construct the pier itself. 302,400 cubic yards is the quantity that will be required to construct the pier in the first instance; that is the quantity which can be obtained in 11 months; the subsidence that will afterwards take place will raise the quantity required to 385,700 cubic yards.

4338. About 44 times 9,000 would be equal to the quantity required?—Yes, I think about 47 times.

4339. *Chairman.*] Have you any returns which you wish to deliver in to the Committee?—I have. (*The same was delivered in*).

Vide Appendix.

Mr. *Charles Alcock*, called in; and further Examined.

Mr. *C. Alcock.*

4340. *Chairman.*] HAVE you a return which you wish to put in, to which you referred upon your previous examination?—I have.

4341. Will you deliver it in?

[*The same was delivered in, and is as follows*:]

Year.		Number of Tons.
1854	Number of ships built in the United Kingdom	207,238
1854	„ „ in the Colonies	152,550
1854	„ „ in Sunderland	66,929
1555	„ „ in Sunderland	93,841
	Showing an increase in ships built in the port of Sunderland of 26,912 tons in one year, and also that Sunderland builds nearly one-half of the whole of the wood ships built in the United Kingdom.	
1854	Sunderland ships cleared coastwise	1,465,008
1854	Newcastle ships cleared coastwise	1,502,526
1854	Shields ships cleared coastwise	158,691
1854	Hartlepool ships cleared coastwise	827,679
1854	Stockton ships cleared coastwise	170,810
1854	Sunderland, from the colonies	32,898
1854	Newcastle, from the colonies	18,395
1854	Newcastle, from other foreign ports and to other foreign ports	1,417,373
1854	Shields, to and from other foreign ports	281,843
1854	Sunderland, to and from other foreign ports	538,827
1854	Hartlepool, to and from other foreign ports	418,595
1854	Stockton, to and from other foreign ports	124,838
1856	Number of ships belonging to the port of Sunderland, 1,037 tons	241,587
1855	The largest ship built in the Tyne of wood	800
1855	The largest ship built in the Wear of wood nearly	1,300
	Showing that Sunderland has now a larger class of ships than any of her neighbours.	

4342. Have

Mr. *C. Alcock.*

7 August 1857.

4342. Have you any statement which you wish to make to the Committee, in addition to your former evidence?—Yes, I wish to state that I believe Sunderland Docks are the only docks that are totally regained from the sea; and where we propose to build a harbour of refuge is the same foundation of rock as that upon which our present docks are built. I was asked by a Member of the Committee, whether I could be sure that it was rock? In answer to that, I may say it is decidedly rock. South part of it is called a shoal, but it is a rocky shoal. The inner part of that rock has been called, from time immemorial, Hutton Smooth; it now breaks the sea from the vessels riding in that part as it is, without anything further being done to it.

4343. Mr. *Ewart.*] What sort of holding-ground is it inside?—It is capital holding-ground; the inside is partly rock; between the two it is partly clay and sand and partly rock. But what I wanted to lead the Committee to was, that it is good ground, that there is no sand where the harbour of refuge is proposed to be constructed.

4344. *Chairman.*] How can it be good holding ground if it is all rock?—If the anchor gets at the back of the rock it is good holding ground.

4345. But supposing it does not?—We very often have to leave our anchors with the gales of wind on shore.

4346. Mr. *Augustus Smith.*] What is the depth of low water at Hutton Smooth?—From 30 to 40 feet.

4347. Generally it is from 30 to 40 feet?—Yes; there would be part anchorage of 40 feet.

4348. Mr. *Ewart.*] Would it not be very difficult to bring a vessel up upon such ground as that?—No; I have been 15 years at sea, and I think I have anchored there 100 times, and our anchors have never slipped.

4349. Lord *John Hay.*] You say you lose your anchors occasionally?—We do occasionally; when we ride there; we do not part from them; we have to slip afterwards. Supposing the wind is to the east, blowing hard, and we ride there some hours, and the wind gets from the north-east, so that our vessels can make a lead upon the larboard tack, we then slip. In a heavy sea we very seldom can get our anchors up, upon any part of the coast. I was 15 years at sea, and I can state that we never had the slightest difficulty in the anchor's holding.

4350. One part of the bottom, you say, is clay?—Yes, one part of the bottom is clay; the whole of the banks are clay.

4351. Is there considerable anchorage where there is clay and not rock?—Yes.

4352. You think that a rocky bottom characterises the bottom of that part of the coast?—Chiefly so; but one part is all clay and sand. Our Sunderland dock is built of one-half clay and one part stone, obtained within three miles of the dock; I do not know how many acres there are in it, but I should think that it is the cheapest dock in the kingdom. We have stone within from two to two-and-a-half miles, and the clay is within one quarter of a mile from the banks.

Mr. *John Dunning*, called in; and further Examined.

Mr. *J. Dunning.*

4353. *Chairman.*] DO you wish to add anything to your former evidence?—In making my estimate of the quantity of slag to be obtained, I simply took the furnaces as they actually stand in the district now, and without reference to being able to procure slag from adjoining places, where blast furnaces are constructed. I believe that it might safely be taken at 1,000 tons per day, calculating for the quantity that is produced in our own immediate district, and also in the neighbouring districts. For instance, from Newcastle we should be able to procure a considerable quantity of this slag I have no doubt, if necessity pressed upon the engineer the construction of this harbour in a short time. According to the calculation that I have made, one-eighth of a mile would be constructed per annum, and going at that speed in say eight years, we should have a harbour that would be a very great protection to that coast

4354. You say that there are 15,000,000 tons of stuff required to make the breakwater?—Yes.

4355. And you say that you could lay down 1,000 tons a day?—Yes.

4356.—That is on week days?—You can get it on the Sundays as well.

Mr. J. Dunning.

7 August 1857.

4357. You could not lay it down on the Sundays?—If it was a matter of necessity it might be laid down on the Sundays.

4358. You would work six days a week, that would be 6,000 tons a week?—Yes.

4359. If you will work that out you will find that it would take you something like 50 years to complete the breakwater?—Yes. Then I divide it into sections, because the breakwater would afford protection as soon as a mile of it was constructed; that would be a very great protection, and it would go on increasing, so that you would not have to wait for the completion of the harbour before you had a very great protection for the mercantile marine.

4360. Lord *John Hay*.] If we are to make a work for a harbour of refuge, do not you think that we ought to make a work which is likely to be finished in less time than that; because if the work is necessary to be made at all, we want it to be made within the next three or four years at the very outside?—I do not believe that you can make a work at all equal to the demand in three or four years. You may get evidence to that effect; but I believe it would not be constructed within three or four years, as the difficulties would be so great, even if you had hills to cut the stone from close to you, without going to an extra cost in workmanship pressing the work forward. Here it would take a longer time, but it would be constructed cheaper, and it would be formed in such a manner that it would gradually give greater and greater accommodation every year, and in the end it would be one of the best harbours in the world.

4361. Mr. *Clay*.] You would be eight or ten years in making the first mile?—Yes; but it would afford protection to a very great many ships; then, in connexion with the breakwater at the Tees' mouth, the further the breakwater is formed to the north the more it assumes the shape of a harbour.

4362. *Chairman*.] You would begin at the south-east end?—Yes, and work up towards Tees' breakwater, and those two together would form a very large harbour with even only 2½ miles of breakwater instead of five.

4363. Lord *John Hay*.] When you said that the estimated time which was given in by engineers for other works was less than the time in which those other works were likely to be executed, are you aware that the works which they propose to execute in a shorter space of time are very much smaller than that proposed to be executed by you?—Yes.

4364. Are you aware that yours is about five times as large as any work that has been brought before the Committee?—I am not aware of the size of the works that have been brought before the Committee; but I have no doubt that the calculations which I have given would be found to be correct in the result, because I have paid very great attention to the large supply of this slag, and I have stated, in my estimate, so reasonable a quantity, that I believe I could obtain double the quantity if the work was pressed.

4365. Mr. *Ewart*.] Supposing that the times for the iron trade were bad, and only half the furnaces were in a blast, you would be in a dead fix?—Yes, but I have taken such a quantity as to average it, and I am happy to say that the iron trade in that district is not likely to be slack, for I believe we can make iron in the district at a profit, when every other place is working at a loss.

4366. Mr. *Clay*.] There has been more than one proposal for employing slag for certain purposes, and making it a more valuable article than it is at present?—I have heard so.

4367. *Chairman*.] You think that in 25 years you might have a tolerable harbour?—I think that in 10 years we should have a very good harbour.

4368. The beginning of one?—Yes, taking the proposed breakwater at the Tees' mouth, in conjunction with my breakwater at the rocks a very good one.

LIST OF APPENDIX.

Appendix, No. 1.

Paper referred to in Captain Washington's Evidence, 13 July 1857:

Report on the best Site for a Harbour of Refuge on the East Coast of England, by Mr. E. K. Calver, R.N., Master and Surveyor - - - - - - - - - p. 245

Appendix, No. 2.

Report of Captain Washington on Waterford Harbour - - - - - - - p. 249

Report of Mr. Ramsay on Carlingford Bar - - - - - - - - - p. 249

Appendix, No. 3.

Padstow Harbour (Cornwall):

Report of Captain Washington - - - - - - - - - - - p. 250

Waterford Harbour:

Memorial from Chamber of Commerce, Waterford, to the Admiralty, to cause the "Sun Shoals" to be Dredged, &c. - - - - - - - - - - - p. 252

Letter from the Liverpool Shipowners' Association - - - - - - - p. 252

Appendix, No. 4.

Papers by Captain Vetch:

Tynemouth - - - - - - - - - - - - - - p. 253

St. Ives, Cornwall - - - - - - - - - - - - - - p. 253

Hartlepool - - - - - - - - - - - - - - p. 253

Wick Bay - - - - - - - - - - - - - - p. 253

Towan Head - - - - - - - - - - - - - - p. 524

Firth of Forth - - - - - - - - - - - - - - p. 254

Appendix, No. 5.

Wick Harbour:

Letter from Captain Vetch to the Secretary to the Admiralty, dated 1 Nov. 1856 - p. 255

Letter from J. Coode, Esq., to the Secretary to the Admiralty, dated 10 Feb. 1857 - p. 256

Appendix, No. 6.

Engineer's Report of the Bar at Carlingford Lough - - - - - - - - p. 257

List of Vessels driven on shore over the Newry Customs' District, from St. John's Point to Cooley Point inclusive, from December 1832 to December 1852; furnished by Captain Leonard Watson, Agent and Surveyor for Lloyd's; Agent for Liverpool Underwriters, for the Royal Exchange, Glasgow; Harbour Master, Warren Point, Carlingford Lough - - - - - - p. 259

Appendix, No. 7.

Returns put in by Mr. Ralph Ward Jackson, and referred to in his Evidence of 29th July 1857:

1. Shipping entered Inwards and Outwards, with Cargoes, in the Year 1856, from the North-east Ports between Flamborough Head and Berwick-upon-Tweed inclusive, a distance of 120 miles of Sea Coast; excluding all Ships in Ballast, which are not entered in the Custom-house Returns, but, for Refuge Harbour purposes, must be equally considered, and may be estimated to be not less than Three-fourths more than the laden Vessels - p. 261

2. Shipping and Exports of Coal and of Declared Value to Her Majesty's Customs of Merchandise Goods, exclusive of Coal from the Ports (Nos. 1, 2, 3, 4) between the River Tyne and the River Tees inclusive, a distance of less than 25 miles of Sea Coast, for the Year 1856 - - - - - - - - - - - - - - p. 261

Appendix, No. 7—*continued.*

Returns put in by Mr. Ralph Ward Jackson, and referred to in his Evidence—*continued.*

3. Estimated Revenue from the Hartlepool Harbour of Refuge - - - - - - p. 262

4. Estimated Revenue to Hartlepool Refuge Harbour, supposing a Uniform District Tonnage Toll charged - - - - - - - - - - - - - - p. 263

Comparison of Hartlepool Refuge Harbour Tolls by a Uniform District Tonnage, or only when Harbour actually entered - - - - - - - - - - - p. 263

5. Shipping entered Inwards and Outwards, with Cargoes, in the Year 1856, at the entire Ports of the United Kingdom, of the Isle of Man, and of the Channel Islands - - p. 264

Appendix, No. 8.

Papers delivered in by Joseph Cowen, Esq., 3 August 1857:

Report of James Walker, Esq., LL.D., F.R.S.L. & E., &c., addressed to the Tyne Improvement Commissioners, dated 15 November 1853 - - - - - - - - p. 264

Registered Ships and Tonnage of the North-east Ports, including Steam Vessels - p. 269

Ships and Tonnage cleared Outwards from the North-Eastern Ports - - - - p. 269

Number and Amount of British and Foreign Ships, and Tons, that cleared from the North-Eastern Ports - - - - - - - - - - - - p. 270

Average Size of Vessels that Entered and Cleared the North-Eastern Ports in 1856 - p. 270

Customs Duties paid in the North-Eastern Ports for the Year ended 31 March 1856 p. 270

Total Number and Amount of British and Foreign Ships, and Tonnage, Entering and Clearing England, Scotland, Ireland, &c., 1856 - - - - - - - - - p. 271

Average Size of Ships, for England, Scotland, Ireland, United Kingdom, and London, 1856 - - - - - - - - - - - - - - p. 271

Brief Statement of Facts in favour of the Construction of a Harbour of Refuge at the River Tyne, by the Deputations from the Tyne Improvement Commissioners, and the several Corporations of Newcastle-upon-Tyne, Gateshead, South Shields, and Tynemouth, the Newcastle-upon-Tyne, Shields, and Gateshead Chamber of Commerce, and the Shipowners' Societies of Tynemouth and South Shields - - - - - - - - p. 271

Table of Statistics, in support of the "Statement of Facts" in favour of a Harbour of Refuge at the Tyne - - - - - - - - - - - - - p. 273

Appendix, No. 9.

Memorial of the Magistrates, Merchants, Shipowners, Traders, and other Inhabitants of Wadebridge (within the Port of Padstow), agreed to at a public Meeting, the Rev. William Molesworth, one of the Magistrates of the County of Cornwall, presiding - - - - - - p. 274

Report of Messrs. Rennie as to the Harbour and proposed Breakwater at Padstow - - p. 275

Appendix, No. 10.

Mr. Calver's Report on the Tees' Harbour of Refuge - - - - - - - - p. 277

Report of John Fowler, Esq., to the Tees' Conservancy Commissioners - - - - p. 278

Appendix, No. 11.

Report to the Trustees of the Harbours of Peterhead, by D. & T. Stevenson, Civil Engineers, dated Edinburgh, August 1857 - - - - - - - - - - - - p. 280

APPENDIX.

Appendix, No. 1.

PAPER referred to in Captain *Washington*'s Evidence, 13 July 1857. Appendix, No. 1.

REPORT on the best Site for a HARBOUR of REFUGE on the East Coast of *England*, by Mr. *E. K. Calver*, R.N., Master and Surveyor.

Sir, Sunderland, 6 December 1856.

IN obedience to your directions to state my views with respect to the selection of a site for a refuge harbour on the eastern coast of England, which would be best adapted to materially lessen the loss of life and property on that seaboard which we have annually to deplore, I shall endeavour, as briefly as possible, to show the necessity which exists for a harbour of refuge; what that necessity arises from, and the site which should be selected for securing the object in view.

Firstly. The comparative necessity for a harbour of refuge upon any section of coast may be determined by the number of wrecks occurring upon it, compared with those upon the adjoining shores, for wherever the greatest number of these disasters takes place, it is but fair to assume that to be the most dangerous portion of the seaboard, and that it possesses features against which neither the efficiency of the vessels navigating it nor the experience of their commanders will ensure protection.

Now I believe it to be a fact of easy proof from existing records, that throughout the whole of the eastern coast of England, from the Thames to the Firth of Forth inclusive, by far the greatest number of wrecks occur north of Flamborough Head, and especially within that embayed portion of the coast, or what may be termed the north-eastern bight, contained between Robin Hood Bay to the southward, and North Sunderland point to the northward, an indentation 78 miles wide and 13 miles deep. These limits, which are tinted blue upon the accompanying illustrative Plan, embrace all the principal ports on the north-east coast of England.

Not having the proper documents by me, I cannot give the exact number of wrecks upon the various sections of the eastern coast, but there is no doubt the great preponderance is as I have stated, and as a careful attention to the features of the coast would have led one to predict. A few special instances of wholesale wreckage may, however, be mentioned, to prove the necessity for a refuge harbour within the limits specified.

It may here be noticed, as a point to be remembered in considering the question, that an easterly gale, or one veering from the south-eastward to E. by N., or E. N. E., is that which causes the greatest destruction of shipping on the north-eastern coast, and which was the case in all the following examples:—

"On the 12th October 1824 a gale commenced from the E. S. E., which afterwards got round to E. N. E.; the result was, that 113 sail of vessels were wrecked or driven on shore between Scarborough and the Tyne; of this number 37 went ashore in Tees' Bay."—Brooks, Redcar, pamphlet of 1832.

"In 1852, within a radius of 70 miles from the Tyne, a quarter of the wrecks of the whole kingdom took place, and in a single easterly gale in October 69 lives were lost in a few hours within 20 miles of the Tyne."

"It appears from the Admiralty Wreck-chart of 1853, that, during 1852, 125 took place within 30 miles of the Tyne."

"In the beginning of January 1854, in an easterly gale, 110 wrecks took place in three days within 30 miles of the Tyne; 36 of them were at the mouth of that river; a large number of lives and a quarter million of property were destroyed."

"Out of 1,141 wrecks and casualties in 1856, 576, or upwards of one half, took place upon the eastern coast."

"On the 5th of January 1857, within a radius of 50 miles from the Tyne, 94 ships were driven ashore or foundered, and 167 lives were destroyed in a few hours, as well as a large amount of property."—Petition of Tyne Commissioners.

Appendix, No. 1.

"January 3d (1857). Fresh gale from S.E. until nearly sunset, when it became more moderate, inclining towards the N.E.; by midnight the gale increased, and from four to six o'clock on the following morning (the barometer rising) it was all but a hurricane; the sea was tremendous, and probably without precedent upon this coast. At tide-time in the forenoon vessels were observed approaching; six of them were driven upon Middleton beach; five sunk in the West Harbour; five went ashore between Carr-house and Seaton Carew; three foundered, with all hands, off the bay; one went ashore on the North Sands, and one on the rocks a little to the westward of the new pier."

"These casualties (21) took place that day within the limits of the port."

"On the night of the 6th (gale not having ceased), a foreign brig was totally wrecked between the two harbours."

"In the gale (according to Mitchell's Register of Wrecks) 80 casualties took place between the Fern Islands and Flamborough Head; 45 of them foundered or were total wrecks, and 130 lives were estimated as lost, one-fourth of them being within the limits of the port, a length of seven miles."—Report of Haven-master to Hartlepool Commissioners.

The sad catalogue is an ample one, and might be extensively quoted; but there is no need in this place to multiply examples. The cases mentioned, embracing an appalling loss of life, and the consequent amount of anguish, misery and destitution, are sufficient to enlist the deepest sympathies of the country; and as there is no valid reason to suppose that these distressing losses will, under existing circumstances, be less frequent than they have hitherto been, the magnitude of the evil, and the means for preventing it, becomes an imperial rather than a local question.

Secondly. The cause of these losses, and the necessity for a harbour of refuge somewhere between Robin Hood Bay and North Sunderland, arise from the following circumstances:—

It is necessary to premise this axiom in navigation. A vessel's liability to be driven ashore by an on-shore gale depends principally on the configuration of the coast abreast; for instance, if she be opposite a salient sea-board, or one which recedes from a given line on either hand, there is no risk whatever, as the land may be cleared either way with a flowing sheet. Abreast a straight or direct line of coast there is a danger of being stranded, and it requires promptitude at the beginning of a gale, and a well-found and powerful vessel, to gain and maintain an offing under such circumstances. But if a gale finds a vessel within the line joining the horns of a bay, like the line A. B. connecting the north cheek of Robin Hood Bay and North Sunderland Point, then the danger of being stranded becomes imminent, and in the majority of cases is nearly certain, depending more or less upon the strength of the gale, the nature of the sea caused by it, the quality of the vessel, her amount of offing, and whether there be a harbour under her lee which will admit her. From the foregoing remarks, it will be understood, that in a bay, or that portion of a coast recessed within the general line, a risk is incurred, which only obtains in a minor degree upon a direct shore, and which has no existence whatever upon one forming a salient line.

To apply this to the present case. The coast between Robin Hood Bay and North Sunderland Point forms a bight, as already noticed, 78 miles across, and 13 miles deep, and as this is the only bay (properly so called) on the eastern coast of England, it is consequently the most dangerous portion of the whole coast. Once caught in this bight in a heavy on-shore gale, or one from E. by N. (which is the direct embaying wind), without the vessel be of light draft, and the state of the tide admits of her entering one of the bar harbours under her lee, there is no escape. Being within the horns of the bay, she cannot clear the land on either tack, and though the catastrophe may possibly be delayed a little by dint of carrying on a press of sail, first upon one tack and then upon the other, her constantly increasing leewardly drift insures her fate, and she is ultimately stranded, generally to her own destruction, and frequently to the loss of the crew.

It is clear that the same risk cannot be incurred upon other portions of the coast, for the reason that a vessel must necessarily be opposite a salient sea-board, and that she will generally have a harbour available for shelter on the one hand or the other. Take, for example, the several stages along the eastern coast of England; a vessel abreast the Fern Islands, with an offing of five miles, will have the land on either hand bearing respectively N. W. by N. and S. $\frac{1}{2}$ E., or, in other words, she will be 2 $\frac{1}{2}$ points of bearing in advance of a direct line, with the Firth of Forth available for refuge to the northward, and the Humber to the southward. From five miles in the offing abreast Whitby, the bearings will be N. $\frac{1}{2}$ W. and S. $\frac{1}{2}$ E., and the vessel will be, consequently, on the direct line. Five miles off Flamborough Head, the bearings will be N. $\frac{3}{4}$ W. to the Ferns, S. $\frac{3}{4}$ E. to the Would, on the coast of Norfolk, and S. by W. $\frac{1}{2}$ W. to the Humber; the latter, a noble refuge harbour, being under her lee for the whole distance from Flamborough Head to Cromer. Off Lynn Deeps, the deeps are available; and so on for the coasts of Norfolk and Suffolk continuously to the Thames; the whole forms a constantly receding, or salient line, affording shelter at the several stages, either by roadstead, harbour or channel. How different is the case on the north-eastern coast. A vessel five miles off Hartlepool Heugh, near the head of the bight, has the land bearing respectively N. $\frac{1}{2}$ E. and rather outside S. S. E.; she is, in fact, recessed 2 $\frac{1}{2}$ points within the direct line, and with no possibility of escape, unless under the exceptions already mentioned.

The necessity for a refuge harbour somewhere within the north-eastern bight is further increased by the existing harbours being fitted for affording shelter only in a very limited degree; they are all bar harbours, and entry into them, at most times attended with difficulty,

is

is rendered extremely critical at the time when it is most needed. The following ruling low-water depths over their several bars will show their inferiority: Warkworth, 1 foot; Blyth, 1 foot; Tyne, 6 feet; Wear, 4 feet; Seaham, 1 foot; Hartlepool, 3 feet, and the Tees, 8 feet. It will be apparent that, except near the time of high water, and then only for handy vessels of moderate draft, they are absolutely unfitted to afford shelter in cases of extremity. Imperfect as they are, however, vessels attempt them under nearly all circumstances, and even when the ebb is running, and the danger arising from a deficiency of depth is greatly increased by a bursting sea. Much loss has occurred under my own observation from these causes, and it is a question in my mind, whether the harbours are not a temptation to risk, and the cause of the loss of more vessels in the attempt to enter them than they save from actual stress of weather. Possessing none of the proper features of a refuge harbour, depth and width of entrance, ample internal space, and complete availability, they can only be termed dangerous decoys.

The necessity for a refuge harbour in the north-eastern bight is still further increased by the vast number of ships constantly crossing it. The whole of the coal ports are within its limits, and it becomes the focus of wreck, partly because it is the focus of trade. Vessels bound to these ports are drawn into difficulties from the necessity which exists for their hanging abreast the several bars, to be ready to enter immediately the tide suits, instead of maintaining the amount of offing which the character of the coast and a simple consideration to the vessels' safety would require. Some interesting facts, connected with the amount of trade, are noticed in the Petition and Memorial from the Tyne Commissioners. It is stated, that "in the five ports of the Tyne, Wear, and Tees, according to a Parliamentary Return, upwards of 8,100,000 tons enter or proceed outwards, being 1-6th of the trading tonnage of the kingdom, and more than that of the Thames. These ports have 102,000 vessels annually entering and leaving their harbours, which makes about 283 vessels daily on the sea-board of these rivers, and sometimes 1,000 vessels are off the coast detained by contrary winds. With those employed in the coal ports, the nature of the trade sends them to sea in the stormy season rather than in the fine; in winter rather than in summer. When once at sea and the necessity arises for a return, there is no return, and hence it is that upon this most dangerous of all coasts, you have one-seventh of the wrecks of the kingdom to deplore."

The foregoing are a few of the principal considerations which show the necessity for the erection of a refuge harbour on the north-eastern coast, and it now remains for me to indicate—

Thirdly. The site which should be selected for securing all the objects in view.

It is clear that it should be as near the head of the bight as practicable; that is, in the neighbourhood of Hartlepool, for this special reason, that a vessel embayed would be able to reach it from any portion of the bight, which she could not do if it were placed anywhere else. To illustrate this, I have marked upon the accompanying Chart the distance of 10 fathoms, opposite each port from the line of embayment, that depth representing nearly the position a vessel would be in if waiting tide to enter the port; and I have also marked the course from such positions to a refuge harbour at or near Hartlepool. The direct embaying wind, as already remarked, is E. by N., and the course for a vessel near Blyth to a refuge harbour at Hartlepool, would be south, or 3 points free; from abreast the Tyne (after Souter Point has been rounded), S. ¼ W., or 3¼ points free; from abreast Sunderland, S. ¼ W., or 3¼ points free; from near Seaham, south, or 3 points free; and from the whole of the northern coast of Yorkshire between Whitby and Hartlepool, N.W. ½ N., or 4½ points free; whereas a refuge harbour placed in the vicinity of the Tyne, for instance, would be comparatively useless to vessels embayed in the same depth of water to the southward of it, as they would have to make good a N. ½ E. or "upon a wind" course to reach it, a feat they could not possibly accomplish, even in moderate weather. It is necessary, in short, to bear in mind, as a material point, that while the greater the distance of a port in a bight from the line of embayment, the greater is its disadvantage in a nautical point of view, so the same fact of deeper embayment renders it more fitted as a site for a harbour of refuge. Hartlepool and its vicinity being at the head of the bight, necessarily embrace the site which should be chosen.

There are three positions in the vicinity of Hartlepool for a work of the sort, from which a selection may be made, viz., Redcar Rocks, the mouth of the Tees, and Hartlepool Bay. I shall give the leading features of each site, as materials to assist in forming an opinion as to their respective merits.

1. Redcar, or Salt Scar Rocks, opposite the village of Redcar, are two main ledges of alum shale, drying from 5 to 7½ feet at low water springs, and projecting in a general E. by S. direction for 1,250 yards beyond low water mark; their dry portions, and the ledges in connexion with them, embrace a space of 172 acres; 15 acres near the centre of this area are occupied by a mass of partially dry ledges named the High Stone; 122 acres, partly sandy and partly foul, have a less depth than 18 feet at low water, and the remaining space of 35 acres is only fitted for berthage in a very qualified sense. It is true, that the late lamented Captain Hewett, in his evidence before the Select Committee on Harbours of Refuge, in April 1836, remarked, respecting a site for a refuge harbour: "Redcar is the only place that nature seems to have provided for the purpose;" but it is right to remember, that Captain Hewett had made no detailed survey of the rocks, and that he appeared to be entirely unacquainted with the mass of foul ground they enclosed. If it were absolutely

Appendix, No. 1.

necessary to form a harbour of the sort near Redcar, the wiser plan would seem to be, instead of building upon the Salt Scars, and so enclosing a nest of rocks, to place the works upon the sandy foreshore, on one side of them, where the enclosed space would be all clear, and where the stability of the works would not be endangered from being placed on sloping ledges, with a bursting sea acting upon the toes of the slopes.

2. The mouth of the Tees, from being the outlet of a river, is not adapted for a refuge harbour, for these reasons:

The sea breaks upon the north-east coast of England, in on-shore gales, in five fathoms at the least, and a refuge harbour, to be taken with safety, should not have a less depth at its entrance. On the bar of the Tees, as already mentioned, there is a depth of eight feet. Admitting that, by the aid of artificial means, this might be increased to 12 feet, yet this is a depth altogether too small for the purpose, remembering that a refuge harbour, to be worthy of the name, must not only be safe of access, but must always be available for entry, whatever the state of the tide may be.

Again, a fair following sea, or one in which a ship running before it is comparatively safe, being under easy control, does not exist in a strong tide-way, especially when the tide-way is the outset from a river. This stream, when directly opposed by the wind, causes a high, hollow, uncertain and breaking sea, in which a ship quickly becomes unmanageable, broaches to, and is lost. From the combined effect, therefore, of a dangerous sea, and a deficiency of depth during the greater part of the ebb, and a want of depth for a considerable portion of the flood, the outlet of a river, however situated, would be useless for refuge purposes during at least eight hours out of the 12.

Again, the channel of approach to a refuge harbour should not only be wide and deep, and be entirely free from a strong tidal outset, but its features should also be permanent. Now it is a characteristic of all rivers issuing from between sands, that their outlets are constantly fluctuating, and, though artificial works might correct this evil for a time, yet the original features, in a modified degree, would eventually form outside them, when the process of change would be continually repeated as before.

There are other objections to converting the outlet of the Tees to the purposes of a refuge harbour, but the foregoing are the principal ones, and it will be apparent that they apply with full force against adopting the Tyne, or any other river, for a work of that description.

3. Hartlepool Bay, the last of the three sites at the head of the north-eastern bight, is, happily, one possessing substantial merits, and one to which few real objections can be made. The following are some of its manifest advantages:—

1st. It has a clear seaward approach, with a gradually decreasing depth in front, and its position is already marked by a good light upon a projecting headland.

2dly. It is not only at the head of a dangerous bight, and thus conveniently placed, as we have seen, for the preservation of life, but it is also to leeward of the principal coal ports in those gales which are the heaviest and of most frequent occurrence, namely, those between north and north-east; and it would, consequently, be admirably adapted for the shelter of vessels caught under such circumstances short of their port.

3dly. It has excellent holding-ground, and the surface of the bottom is uniform. The soil is of stiff clay, of considerable thickness, covered by a surface deposit of sand; it has been bored into to the depth of 20 yards, and it is supposed to be even thicker in the outer portion of the bay.

4thly. It is of a circular form, being partially enclosed, if I may use the term, by the Heugh, a headland of soft magnesian limestone, to the northward, and by the Long Scar, a ledge of soft red sandstone, to the southward. It possesses, therefore, features which, if aided by properly projected works, would afford a large protected space, at a comparatively small outlay.

5thly. The tidal streams in the bay are weak, being at the rate of little more than a knot per hour in springs, and not half that amount in the inner part of the bay; while a judiciously-planned covering-work would not decrease that rate (keeping in view the maintenance of depth), neither would it increase the rate, an important consideration, as I have already stated.

6thly. The strand in the circuit of the bay is sandy and even, and well suited for beaching vessels upon in cases of extremity, with safety to themselves and their crews. It is even now, in its natural and unprotected state, a favourite place among seamen for this purpose.

7thly. It embraces within its limits the two flourishing and rising ports of Old and West Hartlepool; and while its protection and conversion into a refuge harbour would be a direct and inestimable advantage to them, their various docks would supply an inner harbour, into which vessels disabled could enter and be repaired; from whence pilots could get to sea in all weathers; and where assistance could be immediately given, by steam-boats or otherwise, in all cases of distress.

8th. Lastly. A collateral and a not unimportant advantage attending the establishment of a refuge harbour at Hartlepool would be, that being fitted for vessels of heavy draft, it would be invaluable in case of war for the protection of the coal ports, as well as the whole of the north-eastern trade, while its position, nearly midway between the Humber and the Firth of Forth, would render it equally valuable for the defence of the kingdom.

The

The points recommendatory of Hartlepool Bay, as a site adapted for a harbour of refuge, are not by any means exhausted; but I have thought it better to confine myself to the mention of those which are most important, and which afford a favourable contrast in comparing Hartlepool with the other sites in its neighbourhood. Appendix, No. 1.

I am aware that the cost of erecting such harbours has been the chief impediment to their formation, but surely expense should be no obstruction in a case like the present, where considerations of humanity, safety of property, and protection to shipping and commerce are all equally involved.

I have, &c.

Captain Washington, R.N., F.R.S., Hydrographer, &c. &c.

(signed) *Edw. Killwick Calver*, Surveyor.

Appendix, No. 2.

Appendix, No. 2.

REPORT of Captain *Washington* on WATERFORD HARBOUR.

To the Secretary to the Admiralty.

WATERFORD HARBOUR wants but little to make it a harbour of refuge for the greater part of the trade that passes along the south coast of Ireland. To dredge a channel through the flat or bar that extends for a mile to the southward of Duncannon, 20 feet deep at low water of spring tides, and 300 yards wide, would require the removal of about 500,000 cubic yards of soil. As the ground, from borings which have been made, is said to be composed of coarse gravel, there is little fear of its filling up again, if once removed.

Leaving a fair margin for contingencies, there is no doubt but that a contractor would be found to undertake such a work at 9 *d.* per cubic yard, or for 20,000 *l.* If pressed forward with due diligence, the work might be finished in about two years.

(signed) *John Washington*,
Hydrographer.

22 June 1857.

REPORT of Mr. *Ramsay* on CARLINGFORD BAR.

CARLINGFORD BAR.

Frazer's Hotel, Westminster Bridge, 31 January 1854.

Sir,

THE manner in which I consider the removal of this bar is to be effected will be by dredging. The boulder-stones being on the surface can be lifted, except the very largest, by the dredging machine. The large stones will have to be lifted by the diving bell; their number, however, is but small, and therefore the work to be done by the diving bell will be of small magnitude. The largest portion of the work will have to be done by the dredging machine, and to do this work a dredging machine will have to be made expressly for this work, and must be capable of lifting or dredging in from 30 to 40 feet water, so that the dredge may be able to be worked the entire day, the weather permitting, and not by tides' work. The steam power of the dredge should be at least 30 horses; the bucket frame is to be worked in the middle of the vessel, and to have one chain of buckets only. There will be required three large hopper barges and one steam tug. The *modus operandi* I consider to be as follows:—The dredge being moored on the bar is set to work, and having filled one barge, it is to be towed away by the steam tug, and replaced by a second, to be filled in like manner; the full barge, in the meantime, is towed away to deep water seaward, and there emptied, and I consider will be towed back to the dredge before the second barge is filled. A third barge, therefore, will be sufficient, at least for a time.

The steam tug will not only be required for the purpose of towing the barges to and from a place for discharge, but also to remove the dredge to a place of safety whenever it may come on to blow.

	£.
The first cost of the steam dredge will be	6,000
Three barges, 250 *l.* each	750
The steam tug	1,500
£.	8,250

	£.	*s.*	*d.*
Adopting my estimate, viz.	31,296	6	8
And deducting therefrom	8,250	–	–
Leaves	23,046	–	–

equal to 1 *s.* 3 *d.* per cube yard of the entire quantity to be excavated, without any deductions; a sum, I consider, amply sufficient to do the work, and for contingencies.

I am, &c.

Captain Washington, Admiralty.

(signed) *John Ramsay.*

Appendix No. 3.

Appendix, No. 3.

PADSTOW HARBOUR.—(CORNWALL.)

REPORT of Captain *Washington*.

Sir, Woolwich, 1 December 1851.

IN obedience to their Lordships' instructions to report on the proposed Breakwater in Padstow Harbour, I have the honour to state :—

That as to the value of a harbour of refuge on the north-west coast of Cornwall, whether at Padstow, Newquay, or St. Ives, there cannot be two opinions. The wrecks in this district each year are fearful, and the loss of life and property great. It was stated by Mr. Gurney, before the Shipwreck Committee of the House of Commons in 1843,* that not less than 200 vessels had been wrecked in the neighbourhood of Padstow, on an extent of 40 miles of coast between Trevose Head and Lundy Island, by which 426 lives had been lost, and 296,000 *l.* of property destroyed. Any measure, therefore, that could tend to lessen such a frightful loss cannot but be deserving of support.

Padstow Harbour has just claims to be considered in an inquiry of this nature, inasmuch as it is the only harbour in a long line of coast that offers a depth of 16 feet at low water, with a rise of tide of 22 feet on springs; so that there are few vessels that navigate the Bristol Channel for which it might not be considered (as far as depth is concerned) a refuge harbour accessible at all times of tide; an advantage that no harbour can boast of on this coast from the Land's End to Bristol, and again, on the coast of Wales, from the Severn to Milford Haven, a distance of 250 miles, where all are tidal harbours.

Mr. Vyvyan's plea, then, for a refuge at this spot on the score of humanity is unanswerable; and cordially agreeing, as I do, in the desirableness of shelter here, I am compelled to differ from him as to the best mode of obtaining it; at least at the moderate outlay he names.

His proposal is to run a breakwater from the east side of the harbour across the Doombar Sand, either from Brea Hill or Trebetherick Point, in either case about half a mile in length. As an alternative measure a breakwater of 200 yards in extent is proposed on the west side of the entrance in an east direction from Stepper Point.

The whole width of entrance of Padstow Harbour at high water is 1,200 yards in its narrowest part; of this width the Doombar Sand occupies more than 1,000 yards, leaving a channel to the westward of about 160 yards wide at low water to the edge of the Sand, and only 90 yards in width, fit for the passage of a vessel.

Stepper Point, on the west side, is an abrupt rocky headland, rising at its highest part to 270 feet above the level of the sea. Vessels in entering with a westerly wind are obliged to haul close under, as the deep water passage lies quite alongside the cliff, and also to avoid the Doombar, and thus they lose the wind, and are liable to be drifted on the extreme north point of the Sand, called the Ketch, or more properly the Catch.

This loss of wind on entering forms one of the chief difficulties of Padstow Harbour; another is the rapid tide, occasionally running six knots an hour, which renders vessels almost unmanageable; and the last is the heavy swell or run, which sets up the whole estuary as far as the town, after strong south-west and north-west gales of wind at sea. It is to meet these evils that a remedy is sought.

Some attempt at lessening the first evil has very laudably been made by the Padstow Harbour Association, who have expended 1,400 *l.* in cutting down Stepper Point, maintaining buoys, &c.; but since the harbour passed into the hands of Commissioners, which it did by Act of Parliament in 1844, these objects, from want of funds (I believe), have not been sufficiently attended to.

The proposal of a breakwater on the Doombar Sand is no new project, it was put forward by Mr. Richard Thomas, C. E., of Falmouth, in a Plan and Report dated February 1844, prior to the application to Parliament for the Harbour Act. It was brought before the Admiralty in a Memorial signed by the Rev. William Molesworth, as chairman of a public meeting, early in 1845, and in the same year laid before the Tidal Harbour Commissioners; and again referred to by Mr. T. Dryden, of Shields, in August 1850. The subject was also fully considered by myself when I visited Padstow in October 1850, on which occasion I heard all that the Harbour Commissioners, the collector of Customs, and the officers of Coast Guard, had to urge in its favour, and with some of them I rowed down to Hawker's Cove, where I landed and walked out to Stepper Point, when I had a full view of the whole locality in question. But what is of still more importance, I have had the advantage of studying the excellent Admiralty Plan of this harbour, surveyed by Commander Sheringham in 1839, and engraved on a scale of four inches to a nautic mile, which shows the soundings, the sandbanks, and all the singular features of this remarkable estuary.

With respect to the project of a breakwater extending east from Stepper Point, it would block up the existing deep water channel, with the possible chance, but no certainty, of scouring out another more to the eastward. I consider it quite inadmissible.

The

* Report Ev. p. 172 $\frac{349}{1843}$. The light on Trevose Head was not then exhibited.

The other proposals are a breakwater from Trebetherick Point, or Brea Hill, across the Doombar Sand.

Trebetherick Point, it appears, is composed chiefly of hard slate, and it is doubtful if it would afford the stone necessary for the purpose; according to Mr. Thomas's Report (before referred to), a breakwater from this point should be 800 yards long, and rise six feet above the level of high water spring-tides (it must therefore average eight yards deep), and would contain 191,000 cubic yards of stone, and the cost is estimated at 16,100 *l.*, or 1 *s.* 8 *d.* per cubic yard of stone quarried and deposited, or 20 *l.* per yard forward.

Brea Hill is composed of trap; by the same Report it appears that a breakwater from this hill should be 1,000 yards in length, rise 5 feet above the level of high water (it must therefore be 6½ yards deep), contain 157,600 cubic yards of stone, and cost 13,000 *l.* or 1 *s.* 8 *d.* per cubic yard, or 10 *l.* per yard forward.

Whether such a breakwater as either of the above would be a benefit to the harbour is a point in hydraulic engineering that requires careful consideration. It is to be recollected that spring tides at the entrance range 22 feet, neaps 10 feet, and, at Wadebridge, springs range 12 feet and neaps 6 feet. The distance from Stepper Point to Wadebridge is 13,500 yards, or 6¾ nautic miles; the average width of the estuary may be 600 yards; the tide reaches 3 miles beyond Wadebridge, in which distance the average width may be 60 yards and the depth 1½ yards. We have thus the figures, 13,500 × 600 × 4 = 32,400,000 cubic yards on every tide up to Wadebridge, and 6,000 × 60 × 1½ = 540,000 cubic yards above bridge, or, in round numbers, 33,000,000 cubic yards, or 891,000,000 cubic feet of tide passing in and out of the estuary twice in every 24 hours (not to mention the river water and occasional freshes), through an entrance 1,200 yards wide. What then is likely to be the effect of a breakwater that is to intercept 5-6ths of this extent, or 1,000 yards out of 1,200 yards of the opening.

To this question I cannot pretend to give an answer; it may be beneficial, but I should fear it would render the currents in the channel so rapid that no vessel would dare to take the harbour on an ebb tide. It is possible, as the engineer anticipates, that the western portion of the Doombar Sand may be scoured away, and the deep water channel be widened; but the scouring a deep hole in one part, and the laying up a bar in another, as at the entrance of Wexford Harbour, is just as likely a contingency to arise; and where nature has established a balance of forces, as it would appear here, it would not be safe practice to interfere with it, unless prepared with funds to meet any contingency that may show itself. I am far from saying the difficulty may not be grappled with and conquered, but it will require careful engineering, and an estimate of 10 *l.* or 20 *l.* a yard forward, as Mr. Thomas assumes, would seem quite unequal to the emergency; four times the sum would probably be nearer the mark.

But, although I recommend caution and a large fund to fall back upon, with respect to a breakwater on the Doombar, there are a few other points at Padstow on which a small outlay would be well bestowed, and I consider they might confer so great a benefit on the public shipping interest on this coast, as fully to warrant the expenditure of a small sum of public money upon them.

These would be—

1st. The cutting away a portion of the cliff at Stepper Point, reducing it to a level of about 30 feet above high water, and removing about 50,000 cubic yards of stone.
The cost of this work may be estimated at about - - - - - - £ 1,000

2d. The dredging away the bar, of 16 feet depth only, which extends for about 60 yards, in a north and south direction, just off the pitch of Stepper Point, and reducing it to 22 feet depth at low water, for a channel, 100 yards in width, thereby removing about 12,000 cubic yards of stuff, which, at 9 *d.* per cubic yard, would cost - - - - - - - 500

3d. The placing good warping-buoys in the channel, and a large beacon-buoy, or standing perch, on the Catch Point - - - - - - - 250

4th. The establishing warps and capstans just inside Stepper Point, in order to get hold of ships readily, and heave them into safety. A fast-pulling lifeboat at Hawker's Cove would also be of good service (cost) - 250

The whole cost of these works need not exceed 2,000 *l.*; and I am of opinion that a present outlay of this small sum would be of immense value, not only to Padstow Harbour, but to the shipping that pass along this coast, where the steam traffic is daily increasing between Bristol, Hayle, St. Ives, and Penzance. Padstow is the only harbour along the coast from the Land's End to Bristol, and again from the Severn to Milford Haven, a distance of 250 miles, into which a steamer could enter for a supply of coal at all times of tide,—a prominent feature in favour of this harbour that should never be lost sight of.

If, at any future time, a railway approaches Wadebridge and a traffic springs up (which at present does not exist), the more extensive subject of a breakwater on the Doombar Sand might fairly be entertained.

I am, &c.
(signed) *John Washington*, Captain.

I return the plan, and all the papers.

To the Secretary, of the Admiralty.

Appendix, No. 3.

WATERFORD HARBOUR.

MEMORIAL from Chamber of Commerce, Waterford, to the Admiralty, to cause the "Sun Shoals," to be dredged, &c.

To the Right Honourable the Lords Commissioners of the Admiralty, the Memorial of the Chamber of Commerce of the City of Waterford,

Respectfully sheweth,—

THAT for vessels of large tonnage and draught of water, a harbour of refuge on the Irish coast, accessible at all times of tide, is much wanted between Dublin and Cork.

That the harbour of Waterford is well situated, and needs but a moderate outlay to render it permanently effective for such purpose; the only obstruction being a shoal, lying about one mile below Duncannon, covered by a depth of about twelve and a half to thirteen feet of water at lowest tides; not a shifting sand, but a tolerably solid bar, which, if once removed, would not again accumulate.

That whilst such shoal causes little, if any, inconvenience to the actual trade of the port, the fear created by its existence has on several occasions prevented ships of large tonnage from availing themselves of the shelter of the harbour, in consequence of which shipwreck has in some instances ensued, and lately the "Appleton," drawing 19 feet of water, running for the harbour, strained herself by striking.

That the Boards of Harbour Commissioners of the ports of Waterford and New Ross have no authority to levy tolls below the junction of the two rivers, and cannot therefore expend money on portions of the harbour not within their jurisdiction; and that the imposition of a toll on vessels outside, such point would materially diminish the advantages sought to be afforded by the removal of such shoal.

That the foregoing reasons, memorialists respectfully suggest that the improvement sought is rather for imperial than for local interests.

Memorialists therefore pray that your Lordships will take into your favourable consideration the necessity of the removal of the shoal below Duncannon, and recommend the work as worthy to be undertaken by Her Majesty's Government.

Signed and sealed for and on behalf of the Chamber of Commerce of the City of Waterford.

(signed) *William Llyod*, Vice-President. L. S.

Waterford, May 1857.

LETTER from the Liverpool Shipowners' Association.

Shipowners' Association,
Liverpool, 17 July 1857.

My Lords,

I HAVE been requested by the committee of the Liverpool Shipowners' Association to acquaint your Lordships that they have had under their consideration a memorial recently presented to your Lordships by the Chamber of Commerce of the city of Waterford, bringing under your Lordships' notice the position of the harbour of refuge, if the shoal therein referred to were removed, and the expediency of removing the same, and recommending it as a work worthy to be undertaken by Her Majesty's Government. Other documents, accompanying the memorial, tending to show that the difficulties and expense of removing the shoal were inconsiderable, were brought under the notice of the committee.

The committee having taken the memorial and accompanying documents into their careful consideration, are of opinion that if the depth of water into Waterford Harbour can be increased at a moderate expense, so as to permit vessels of heavy draught to run in for shelter, it is very desirable that the work should be forthwith undertaken. The committee are strongly impressed with the opinion that a harbour of refuge between Dublin and Cork would be an important advantage to shipping navigating the St. George's Channel, and the harbour of Waterford is the only one at all adapted for the purpose.

The committee of this association would, therefore, respectfully represent to your Lordships that they deem the memorial of the Chamber of Commerce at Waterford duly deserves the favourable consideration of your Lordships.

I have, &c.

(signed) *J. R. Graves*, Chairman.

To the Lords Commissioners of the Admiralty.

Appendix, No. 4.

PAPERS by Captain *Vetch*.

TYNEMOUTH.

The piers being constructed at the mouth of the Tyne are the designs of Mr. James Walker, C. E., will, it is expected when finished, by confining and condensing the flux and reflux of the tidal current, scour out a deep channel, and render access to and from the river available at all times of the tide, and remove in future all danger of vessels drifting on to the Herd Sand.

The north pier is feet in length, and is estimated to cost *l.*, and to be finished in years.

The south pier will be feet in length, and is estimated to cost *l.*, and it is expected will be completed in years.

The "Stones," or Inner Bar, has been removed to a great extent, and it is to be desired the same may be entirely removed.

ST. IVES, CORNWALL.

In 1846 I was directed by the Admiralty to visit and report on St. Ives' Bay, with a view of deciding on the best line of piers, &c., which would improve that harbour; the parties locally interested having applied to the Admiralty by petition for such a proceeding.

After giving due notice, I had the benefit of the presence of all parties interested, and the information they had to offer.

The seafaring men were very distinct as to the best direction for the pier, to effect the object in view, and which I recommended should be carried out to the extent of 20,000 feet, which would give a shelter of 80 acres of 12 feet and upwards, and 56 acres of 18 feet and upwards, which would be ample accommodation for the vessels of the port, and for the refuge of those likely to run there for shelter. As to cost, the materials were good, and were at hand, and other conveniences tended to render the cost less than at other places; and the accommodation to be so procured was ample for the ends in view.

Indeed, as a first step in the improvement, the work might be stopped at 1,200 feet, and reserve the further outlay until the necessity arose for extending the first cost to about 100,000 *l.*

The reasons for the measure are fully described in my Report, which I now beg leave to hand in.

HARTLEPOOL.

The Head, or Bay of Hartlepool, seems to be the best situated as a place to shelter the vessels which get embayed in north-east winds on that line of coast, and which are unable to weather the land on either hand, because it is the more leeward part of the shore, and that to which vessels would be driven in their extremity.

Admitting this, there appears to be a considerable difficulty in projecting works of shelter which would be free from danger of sanding up: long piers, projecting from the shore, might stop the travelling of the sand into the site proposed, but such arms would not give shelter from the weather point, and it is necessary to look this difficulty in the face; and what has occurred to me is, that the proposed shelter be afforded by a detached work like that of Plymouth Breakwater, or that of Cherbourg on the coast of France, and I have to explain my meaning by the sketch herewith; and although the harbour proposed by Mr. Rendel might have proved very useful as an outer one, or entrance to Hartlepool Docks, I do not conceive it would have satisfactorily answered the object of a general shelter to vessels embayed on that coast in north-east gales, and, consequently, that the sum of 800,000 *l.*, proposed to be so applied, would not have effected the object to the extent required, while it would have been liable to sand up, as in the case of Howth Harbour, and the case was proposed to Mr. Calver to report whether the proposed harbour was most likely to follow the of Kingstown Harbour, or that of Howth Harbour, but with a direct passage through the area, in a line parallel to the shore, would probably avert the danger, and at the same time leave an entrance open at either end for vessels to enter either from the south-east or north-west: but this question will, no doubt, be well investigated before any plan be finally approved of.

Such a work, I conceive, would not be accomplished under a period of 10 years, or at a less cost than one million.

WICK BAY.

Wick Bay lies 12½ nautical miles south of Dunscanby Head, a great turning point of the navigation for vessels bound through the Pentland Firth.

Wick Bay is the only natural harbour on that part of the coast, but is open to the south-east.

Wick is the head quarters of the herring fishery, being nearest the fishing-grounds, and the only commodious shelter in that vicinity.

Appendix, No. 4.

The loss of boats and lives, from insufficient shelter, has long drawn the attention of Government to an improvement, and to render complete what nature has left unfinished, and various projects have been offered to supply the deficiency.

The question of the harbour generally and its requirements, came before me about twelve months ago, and it became my duty to point out what was required to meet the objects of the fishermen, and afford a refuge to merchantmen, either connected with the fishery or waiting for a wind.

The British Fishery Society had already constructed two sheltered harbours, but both dry at time of low water, of about six acres each, at a cost of 37,000 *l.*, and the society sought powers, in this Session of Parliament, to construct another small harbour, in advance of the first named, to consist of 16½ acres of low-water area, and proposed to be enclosed by a pier 1,500 feet in length, at an estimated cost of 44,500 *l.*

It was obvious enough, that had this work been sanctioned, the capacity of the bay for the refuge of boats and vessels would be much impaired, and therefore that the time had arrived when the Government must decide.

It therefore became me to point out (in my view of the case) what amount of shelter would be required to effect a measure of general and future benefit; and, restricting my views to the narrowest extent that would be effective there, I designed a pier on the south side of the bay 1,400 feet in length to supersede that proposed by the society for its private use.

I then submitted the design to Mr. Coode, the engineer to Portland Breakwater, for an estimate of cost, and received from him two cross sections, one with a perpendicular wall, to 12 feet below low-water mark, which he estimated to cost 100,815 *l.*; and with an upright wall from low-water mark only, he estimated at 91,960 *l.*

As a public and complete harbour of refuge, there was further required a pier proceeding from the northern shore, the length of which amounted to 1,150 feet, which, in like manner, was estimated by Mr. Coode to cost 85,327 *l.* and 83,215 *l.* respectively. He estimated the work entirely at free labour, and taking into account all contingencies.

Mr. Abernethy, C. E., also gave me an estimate for the same work, on a principle of his own, combining stone and timber, and estimated as follows:—

Both piers	£. 178.255

The above works proceed into 6½ fathoms water, at time of low water, the rise and fall being 10 feet, and they enclose an area,—

At time of low water, of	115 acres.
Of 2 fathoms and upwards	62 „
Of 3 fathoms and upwards	42 „

The bottom of the enclosed space is of clean sand, and of a regular depth, the rocks being entirely confined to the line of shore.

The depth and area would afford anchorage to 100 sail of merchantmen, and to 1,000 fishing boats, besides berthing ships of war when required.

For the objects in view, I see no other site on that part of the coast applicable to the same purpose, and therefore conceive Wick Bay as one of the first harbours of a public character, calling for the aid of Government, with every prospect of a return indirectly, by the saving of vessels and lives, and by giving an impulse to trade and the fishermen.

TOWAN HEAD.

Towan, New Quay Bay.—At the instance of the late Mr. Treffry, a very enterprising and indefatigable gentleman in Cornwall, the Admiralty directed Mr. William Bald, C. E., to visit the locality, and entering keenly into the project, he proposed sea walls feet in length, giving shelter to an area of acres, having a depth of 12 feet, and of acres having a depth of 18 feet and upwards at time of low water, which would accommodate a fleet of line of battle ships, and provide a shelter for 100 times more merchant vessels than are likely to use it.

The site, although good for the formation of a large harbour, does not extend to be called a national harbour, as the estimated cost of harbour works, 711,744 *l.*, too clearly shows. The only pity therefore is, that such a fine harbour as that proposed should be located where its advantages could not be availed of, except to a very limited extent.

FIRTH OF FORTH.

Elie.—Elie Bay is well situated on the north shore of the entrance to the Firth of Forth, and is capable of much improvement at comparatively little cost, by running out a pier from Elie Ness for 300 yards, which would enclose a large and suitable area for a fleet of fishing boats, much wanted, and which would cost about 50,000 *l.* But even a less distance would be useful, and it is probable the parties interested in the locality would contribute to the works.

Dunbar.—A similar sum might be well employed at Dunbar, on the south side of the Firth, and which, together, would render the fisheries in that locality much safer, and give accommodation forthe curing process of the fish.

Appendix, No. 5.

WICK HARBOUR.

Sir, Admiralty, 1 November 1856.

In reference to the Treasury Letter of the 8th of August, transmitting a Memorandum of the British Fishery Society, with a Report and Plan prepared by Messrs. Stevenson, civil engineers, for constructing a breakwater at the harbour of Wick, and requesting the opinion of the Lords Commissioners of the Admiralty thereon, which was referred to me, I have now to lay the following statement before their Lordships:

That, under date of the 3d of March last, the deputy-governor of the British Fishery Society submitted to the Admiralty the following propositions:—

First. That, if possible, the society may obtain effective pecuniary aid in such an enlargement of the present harbour as will, in the opinion of the highest engineering authority, be sufficient to meet the requirements of the case.

Secondly. That failing to obtain this aid, and after submitting the facts of the case to the Government, the society be absolved from all responsibility from any disaster that may happen to life or property through the continuance of a state of things which, unassisted, they have not the means of remedying.

The question having been referred to me, I reported on the 14th May, and accompanied my Report by a sketch of the haven, showing the breakwaters necessary for the requirements of the case, and a reply was sent to the deputy-governor on 20th June.

The question has now reappeared with a distinct form of the work proposed to be executed, and with a distinct application for a sum of 21,000 *l.* to aid the society in completing the proposed work shown on a Plan herewith.

The proposed new harbour in Wick Haven is estimated to cost 45,000 *l.*, of which the company proposes to supply 25,000 *l.*, if the Government will supply the remainder, viz., 20,000 *l.* The enclosed area of the harbour will contain 20 acres.

Looking to the site of the proposed harbour and the aspect of entrance, the first objection which offers itself is the probability of its sanding up to a considerable extent.

In 1811 a harbour was completed by the Fishery Society, which cost 16,000 *l.*, and to which the Government contributed 7,500 *l.*; and in 1834 another harbour, in continuation seaward of the last, was completed at a cost of 21,000 *l.*, both of which have now sanded up to a great extent, and, as now explained, are unsuitable for the wants of the society. The present scheme is to construct a harbour in continuation seaward of the before-named harbours, with its mouth looking up the haven, from which direction the sand and gravel, which now encumbers the upper part of the estuary, are derived; there are therefore reasonable grounds to conceive that the fate of the first two harbours will, in some degree, attend this new scheme.

Looking to the position of the proposed jetty, it may be admitted that it will shelter 20 acres of anchorage, for boats and vessels, on the south side of the haven, and also an extent of shore of 1,300 feet in length; but it seems equally obvious that the structure as proposed, by compressing the force of the sea into a narrower funnel, will render 38 acres of anchorage and 3,000 feet of shore on the north side of the haven exposed to a much greater weight of sea than at present; and it is to be observed that along the north shore are numerous piers, slips, &c., for the use of about 250 fishing boats, and for curing the fish; so that the supposed benefit to be conferred on the Fishery Society at the south side of the haven would result in injury to the north side structures and shelter, and from which the first inference to be drawn is, that both shores of the haven ought to be equally sheltered by any future works.

It is alleged, in the statement of the Fishery Society, that the proposed harbour will afford shelter to 1,000 fishing boats resorting to Wick Bay in the fishing season, and also to 200 other boats from neighbouring creeks when a storm suddenly arises.

Secondly. That it will present a safe refuge for vessels of any size, either bound to or from the port, or sailing round the Pentland Frith, on a coast very deficient in harbours.

Thirdly. That it will be a position of great importance for a fleet in time of war.

After an attentive consideration of the subject, I am distinctly of opinion that the proposed harbour will accomplish none of the above objects in a complete and effectual manner, and that such a structure would stand most detrimentally in the way of a more comprehensive measure which would do so.

Such a structure might indeed be valuable to the interests of the society, by extending a line of sheltered shore, by the construction of curing grounds, and by the shelter and convenience afforded to boats resorting thereto, but it certainly could not accommodate all the fishing boats resorting to the haven, and much less, at the same time, serve as a harbour of refuge to vessels of any size; nor could it serve as a position of great importance for a fleet in time of war. Twelve hundred boats would cover eight acres of surface alone, and would require 16 acres for lanes and passages, a clear entrance, and a safe distance from the shore; but I have heard it stated, that on some occasions a much greater number of boats have been in the haven;

Appendix, No. 5.

haven; if insufficient therefore to accommodate all the herring boats in a storm, how then could vessels of any size seek refuge there at the same time, if embayed in a storm on shore? they must either enter the harbour to the destruction of the herring boats, or get stranded elsewhere from want of shelter; under such circumstances, how could such a harbour become a shelter for traders, or be a valuable position for ships in time of war?

Admitting the importance of Wick Haven for all these purposes, and admitting also its capabilities for so doing, I am distinctly of opinion that the proposed structure could not effect the ends assigned to it, and, moreover, that the propositions of the society are at issue with a more comprehensive measure, which could effect the objects in question, and, in saying so much, I am bound to state how the same might be accomplished, without injury elsewhere.

I therefore beg attention to the sketch herewith attached, whereon the yellow line shows the work proposed by the British Fishery Society; and the two red lines, about 400 yards in length each, represent two breakwaters proceeding from the shore on either side of the haven, approaching to each other, and leaving an opening or entrance of about 400 feet for vessels and boats.

By an inspection of the sketch, it will be seen that shelter for boats, and ships of war, and traders is thus amply provided for; that an area of 115 acres of low-water surface is provided; that within the pier heads vessels of 30-feet draft of water may ride; that both shores of the haven are equally sheltered, and, consequently, that a shore line on the north side, of 4,000 feet in length, and on the south side, of 2,000 feet, might be made applicable to the requirements of the fishing boats.

The cost of these two breakwaters, as above described, I estimate roughly may amount to about 70,000*l.* each.

This measure, to meet all the requirements of the problem which I have thus described, appears, in my view of the question, to be the smallest that could be effectual for the objects in view, and, considering the great national importance of such a work, I venture to submit that, if the scheme be approved of, the Government undertake the construction of the two breakwaters or piers, on the condition that the British Fishery Society contribute 25,000*l.* to the same; and further, as the work must be one of slow progress, I would submit that a sum of 25,000*l.* be taken in the votes of next Session, in order that no delay take place in the commencement of the works.

I am, &c.
(signed) *James Vetch.*

Postscript.—It is important to contrast the probable consequences from a sudden gale of wind under the two propositions.

Supposing such a gale to come on from the east, and that 1,200 boats, and 12 vessels of various classes, had to run for shelter in Wick Haven. It will be obvious, as regards the society's harbour, that the above boats and vessels must crowd for the entrance at the harbour's mouth, and haul up suddenly, and alter course in a mass, from which great loss is too likely to ensue and where the vessels, as before stated, dare not enter for fear of damaging the boats, and must therefore either ride out the gale without shelter or go on shore; whereas, upon the plan I have suggested, the boats, in an easterly gale, would pursue a straight course, and get into shelter along either shore, while men-of-war and other vessels, in passing the entrance, might haul up, under either pier in deep water, and be entirely out of the way of the boats.

To the Secretary, Admiralty. (signed) *J. V.*

Wick Harbour.

Sir, Portland, 10 February 1857.

Your letter of 28th ultimo, enclosing a plan and section for a proposed harbour of refuge at Wick, and requesting that I should furnish an estimate of the cost of that work, was forwarded to me in London. Since my return I have gone into the question of estimate as closely as the information at my disposal will permit.

Having regard to the circumscribed space which is noticed as a reason for the work being partially, if not entirely, upright, I have considered that point, and have framed an estimate accordingly.

I have assumed the breakwaters to be constructed according to the lines laid down in red upon the tracing, and that the work will be composed of rough stones of various sizes thrown in promiscuously from a stage, and brought up in this manner to the level of 12 feet under low water, and that, above this level, upright walls should be built both on the sea-face and towards the harbour. Immediately adjoining the heads, and for 100 feet back, the walls should be built from the level of 20 feet under low water of spring tide. The cost of the work executed in this manner I estimate at—

	£.
For the north breakwater - - - - - -	85,327
For the south breakwater - - - - - -	100,815
Or, together - - - - -	186,142

If

If the rough stone be brought up to low water of spring tides, and the masonry be built from that level, I estimate that the cost will be as follows, viz.:— Appendix, No. 5.

	£.
For the north breakwater - - - - - -	83,215
For the south breakwater - - - - - -	91,960
Or, together - - - - £.	175,175

Notwithstanding the additional cost, I should recommend the former plan as preferable in this case.

In both of these estimates I have made a fair allowance for contingencies, and have assumed the work to be executed in a sound and substantial manner; it is necessary to remark, however, that, in the absence of any personal acquaintance with the locality and site, or the character of the bottom of the bay, or the facilities for constructing railways, &c., these estimates can only be regarded as approximate.

I have also assumed that the work would be executed entirely by free labour, as the difference of cost between free and convict labour would be materially affected by the mode in, or the extent to, which convict labour might be adopted, and also by the time which the work might occupy consequent upon the employment of convicts thereon; it would therefore appear to be injudicious to institute a comparison at this early stage.

Although not called upon to remark upon the lines for the breakwaters as laid down upon the tracing sent to me, I may perhaps be permitted to suggest, that the site of the entrance should be considered in all its bearings before it be finally decided to place it in the middle of the bay. As I believe the heaviest gales upon this part of the coast are from the south-east, it might be well to bring the entrance rather more under the lee of the southern shore of the bay; or it might prove still more advantageous to have two entrances, each about 100 yards in breadth, placing one well in towards either shore.

I beg to return herewith the tracing received with yours of the 28th ultimo.

I have, &c.

Thomas Phinn, Esq., &c. &c. &c., Admiralty. (signed) *John Coode.*

Appendix, No. 6.

ENGINEER'S REPORT OF THE BAR AT CARLINGFORD LOUGH. Appendix, No. 6.

To the Committee of the *Newry* Navigation Company.

Gentlemen,

Having, according to your wish, visited, in July last, the Bar at the entrance of the Carlingford Lough, and made the necessary survey and borings, for the purpose of ascertaining its nature and capabilities of improvement, I would beg to submit the following Report concerning it, for your consideration:—

The bar extends the whole distance between Ballagan and Cranfield Points, at the entrance to Carlingford Lough. It is partly bounded, on the north-west, by a line of rocks from Hawl Bowling, on which the present tide and half-tide lighthouse stands, to the shore on the Ballagan side. It is divided, from its position being nearly north and south, into the north and south bar; the north bar being about one-third of the distance; the south, the remaining two-thirds. The latter, or south bar, is so foul with large tumbling stones; the soundings so shallow, and the passage to the lough so choked with the above-mentioned rock, that it is only fit for boats. The channel, or entrance to the lough, is by the north bar, and between Hawl Bowling and the shore on the Cranfield side. This bar extends, in length, in the direction of the lough, nearly one-third of a mile; measuring from the line, of three fathoms water, of low water, of spring tides, inside the bar, to the line of three fathoms, outside of the same. The soundings of low water, of spring tides, are about nine feet, though no sooner is the bar crossed than they deepen inside to five, six, nine, and 14 fathoms; and outside, to five, six, and upwards. At high-water, of neap tides, there are 21 feet water and 26 at springs.

Having, at low-water, sailed on the bar, and having sounded the bottom with our boat-hook, my impression was, from seeing it almost surrounded by rocks, and the boat-hook striking so hard upon the stones, which were found to cover the surface of the bottom, that it would be, as has hitherto been reported, "a solid vein of limestone rock," running from Cranfield Point to Ballagan Point. By persevering, however, some parts were found to yield, and appeared soft. This was thought to be a deposit of sand between the crevices of the rock. To be more certain of its nature, however, and being provided with boring apparatus, two boats were moored and lashed together, and the boring commenced between them. This process went on very favourably; and, after proceeding for about half-an-hour, the augur,

Appendix, No. 6.

which was several feet into the bottom of the bar, was raised, bringing with it the shell-full of the borings. The substance raised was a blue, pliant, fine-grained clay; the finer the further down; that, at the surface, being, in part, mixed with sand.

Having been so far successful, the whole bar was subjected to the same test, with equally satisfactory results. In no one instance, throughout the whole bar, was there the least appearance of rock found. The surface of the bar was, more or less, covered with loose tumbling stones; some parts were, however, quite free from them.

The weather being moderate, and the water very smooth, during several of the tides, the bottom was quite visible. The stones were distinct; the largest but of moderate size, and the sea-weeds growing in abundance upon them. The clay, which is naturally in layers, had every appearance of rock; but when the point of the boat-hook raised a small portion, it incorporated with the current water, and clouded it.

The borings were numerous, and averaged in depth from 18 to 23 feet below low-water. The relative position of the most particular of these borings are laid down on the accompanying plan, marked thus ⊙; having the letters of the alphabet attached, and corresponding to the following description.

See Plan at the end.

The borings marked A, B, E, J, N.—The surface was loose tumbling stones, cemented together by the clay. Below the stones was clay, partly mixed with sand, for about two feet six inches. The remainder of the bore was very fine clay, as per specimen. These borings averaged from 18 to 23 feet below low-water.

C, D, F, G, H, L.—Some of these borings the clay was to the very surface; others, for a few feet down, were coarse gravel, sand, and clay mixed, as per specimen. They all terminated in fine clay, and averaged from 18 to 20 feet below low-water.

K, I, M, P, Q.—The surface was loose tumbling stones; and below these, coarse gravel for several feet. In the remainder of the boring, to the depth of from 18 to 20 feet below low-water, there was so little admixture of clay that the stuff was washed out of the augur before reaching the surface.

Morgan's Pladdy, the Little and Big Breast, and Helly Hunter, were also bored and sounded. These places were found to be composed of loose tumbling stones, coarse gravel, and clay lowermost. The clay is of the same nature as above-mentioned. The soundings of the former three were from eight to ten feet at low-water, spring tides.

Helly Hunter lies in a S.E. direction from the bar, at about one mile and three-quarters out at sea; the sounding is about six feet. The stones here are very large, but loose; and the clay to the very surface, of which you have a specimen.

Some of the stones were lifted from the bar; they are mostly of a good quality of limestone. Were these removed, the deepening of the bar would, to a certain extent, be effected by the current of the tides, which, during neaps, is about three-and-a-half knots per hour, and five-and-a-half during springs. The clay is of a very fine quality, and capable of being made into articles for domestic use, of which the Committee have had a specimen.

It is a matter of regret that so great and deep a basin of water as the lough should have such a barrier at its entrance; a barrier, however, from what has been above stated, capable of being improved and deepened to any extent; so that the largest class of vessels might pass over it at all times of tide. When past this bar, the lough is capacious, and a harbour of great safety; affording convenient and good anchorage, and capable of containing any number of vessels of the largest description. The soundings immediately inside of the bar are, as above stated, not less than six fathoms, and average to ten fathoms till past Greenore; from which point, to considerably more than half-way to Warren Point, the soundings are not less than five fathoms. Throughout the whole of this distance there is excellent anchorage and shelter. The remainder of the lough, towards Warren Point, and the Bay of Rosstrevor, is either of a sandy or muddy bottom, so that vessels can take the ground with perfect safety.

Were it not for the bar at the entrance of the lough, which precludes the larger vessels from entering except at or near high-water, it would be an invaluable place of retreat and safety for vessels taken in a storm. At present there is no harbour for shelter between Dublin Bar and Belfast Lough; and were Carlingford Lough made accessible, at all times of tide, for the largest class of vessels, it would greatly benefit the shipping interest at large—the district in the immediate vicinity of the lough—and might be the means of saving the crews and cargoes of many large and valuable vessels.

The entrance is at present provided with two lighthouses; one of a tide and half-tide light, at the very entrance; the other a revolving light at Greenore, a little up the lough. There is also a large buoy at Helly Hunter, and several buoys and perches throughout the lough. The bar is at present the only obstacle that prevents the lough being a place for indiscriminate navigation.

I am, &c.

Fathom, Newry, 15 October 1835. (signed) *John Ramsay.*

Note.—The bar is, more properly, a shoal, being the natural bottom of the entrance to the lough; is composed, as aboves tated, of clay, covered with loose stones, and is not a formation resulting from deposits dropped there, as is the case of bars formed at the entrance of rivers. This bar never varies in depth, nor changes its position; and were it once removed, would never require to be again touched, the strength of the tide, on both flood and ebb, being more than sufficient to prevent any deposit. *J. R.*

LIST

Appendix, No. 6.

LIST of VESSELS driven on shore over the *Newry* Customs District, from *St. John's Point* to *Cooley Point* inclusive, from December 1832 to December 1852; furnished by Captain *Leonard Watson*, Agent and Surveyor for Lloyd's; Agent for Liverpool Underwriters, for the Royal Exchange, Glasgow; Harbour Master, Warren Point, Carlingford Lough.

5 Aug. 1832 - Barque "Delafore," value 3,000 *l.*; ran on shore in Dundrum Bay; got off with assistance.

14 Oct. 1833 - Schooner "Vine," 1,000 *l.*; ran on shore on the Scar inside of Carlingford Bar; got off and repaired damage.

8 Dec. „ - Brig "Earl Aberdeen," 6,000*l.*; driven on shore in Dundrum Bay; discharged cargo of timber; got the vessel off and repaired.

14 Mar. 1835 - Ship "Heroine," 4,000 *l.*; driven on shore in Dundrum Bay; bound to New Orleans; in ballast; lightened and got off with assistance.

5 Nov. „ - Barque "Bellona," 3,000 *l.*; driven on shore in Dundrum Bay; in ballast; bound to New Orleans; vessel and materials sold on account of the underwriters; vessel got off, and repaired at Warren Point.

16 Dec. 1836 - Schooner "Minapia;" lost, and all hands, off St. John's Point; supposed value 1,000 *l.*

26 Dec. „ - Smack "Countess Roden," 200 *l.*; wrecked on the Block-house Island; crew saved.

12 Jan. 1837 - Schooner "Eliza," 800 *l.*; damaged on the bar; proceeded to Warren Point in a leaky state; vessel repaired.

11 Sept. „ - Ship "Cœur de Lion;" driven on shore in Dundrum Bay, from Liverpool; bound to Montreal; five of the crew drowned; cargo (general) landed in a damaged state, and sold; vessel got off and towed to Liverpool; vessel and cargo valued at 20,000 *l.*

23 Oct. 1838 - Schooner "Friendship," 500 *l.*; driven on shore in Dundrum Bay; cargo, slates; landed; vessel got off and repaired.

23 Oct. „ - Brig "Stranger," 1,000 *l.*; driven on shore in Dundrum Bay; vessel broken up and sold; cargo sold.

23 Oct. „ - Schooner "Rapid," 800 *l.*; lightened and got off; in ballast.

23 Oct. „ - Schooner "Bloom," 600 *l.*; total wreck; crew saved.

4 Nov. „ - "Elizabeth," 600 *l.*; struck on Carlingford Bar; sunk in 2 fathoms off Soldiers' Point; cargo, pig-iron; recovered; vessel weighed; repaired at Warren Point, and proceeded to Cardiff.

17 Feb. 1839 - Ship "John Stamp," 20,000 *l.*; driven on shore, Leestone, Coast of Morne, from Bombay, bound to Liverpool; seven of the crew drowned; vessel total wreck; cargo, principally cotton; saved, and forwarded to Liverpool in a damaged state.

6 Mar. „ - Sloops "Margaret, John and Hebe," 1,500 *l.*; ran on shore in Cranfield Bay; damages repaired, and proceeded, having got off with assistance.

2 June „ - Brig "Mary Stewart," 500 *l.*; struck on Carlingford Bar; damages repaired, and proceeded.

9 Dec. „ - Schooner "Elizabeth," of Whitehaven, 600 *l.*; struck on the bar; damages repaired, and proceeded.

18 Jan. 1840 - Brig "Kincardineshire," 2,000 *l.*; driven on shore, east of Dundrum Bar; crew saved; cargo, cotton, iron, and salt; saved in a damaged state; vessel got off and repaired.

18 Jan. „ - Brig "Trevor," 3,000 *l.*: driven on shore near Tyrella, Dundrum Bay, from Alicante, bound to Belfast; vessel and cargo total wreck; crew saved.

2 May 1841 - Schooner "Clytie," 600 *l.*; total wreck off Ballagan Point.

12 Jan. 1842 - Schooner "Mary," 800 *l.*; when proceeding over Carlingford Bar; coal laden; struck, and sunk off Soldiers' Point; vessel weighed, and repaired at Warren Point.

16 Nov. „ - Brig "Tagus;" struck of Carlingford Bar; bound from St. John's, N. B.; cargo, timber; got off, and repaired damages; vessel and cargo valued at 3,500 *l.*

Appendix, No. 6.

19 May 1844 -	Brig "Susan," 800 *l.*; struck on Carlingford Bar, when proceeding for the harbour; repaired damages.
3 Mar. 1845 -	Barque "Orissa," Liverpool to Bombay; struck on Carlingford Bar, when proceeding over, during a heavy easterly gale; unshipped her rudder, and was driven into Cranfield Bay; cargo all saved in flats, stored in Warren Point; vessel repaired; took on board her cargo, and proceeded to Bombay; vessel and cargo, value 25,000 *l.*
15 Oct. „ -	Brig "Industry," 700 *l.*; struck on the Scar inside Carlingford Bar; got off; repaired damages, and proceeded.
2 Dec. „ -	Brig "Active," 800 *l.*; driven on shore in Dundrum Bay; crew saved; vessel and materials sold.
31 Dec. „ -	Brig "Betty," 600 *l.*; ran on shore in Cranfield Bay; got off; damages repaired.
Jan. 1846 -	Schooner "Wellington," 500 *l.*; driven on shore at Annalong; vessel and cargo saved.
22 Feb. „ -	Brig "Gloom," 2,000 *l.*; wrecked in Dundrum Bay; from Liverpool, bound to Steten; crew saved; vessel and materials sold.
23 Feb. „ -	"Great Britain" Steam Ship; Hosken, commander; ran on shore near Tyrella, Dundrum Bay, at 10 p.m.; from Liverpool, bound to New York; crew and passengers saved; vessel got off, and towed to Liverpool.
14 Dec. 1847 -	Ship "Marchioness of Bute," of Belfast, for New Orleans, 4,000 *l.*; driven on shore near Cooley Point; crew saved; cargo salt, partly damaged; vessel and materials sold; got off and repaired.
24 Dec. 1848 -	Barque "Sarah Parker," from Liverpool to Savannah; 5,000 *l.*; driven on shore near Annalong during a heavy easterly gale; cargo, railway iron, saved; hull and materials sold; vessel got off and repaired at Warren Point.
26 Dec. „ -	Schooner "Lady of the Isles," 1,500 *l.*; driven on shore off Ballagan Point; dismasted; crew saved; vessel got off and repaired in Warren Point, and proceeded to Guernsey.
6 Dec. „ -	Barque "Bee," of Liverpool, to Charleston, 2,500 *l.*; wrecked on the coast of Morne; cargo, salt and coal; one of the crew lost; vessel and materials sold; vessel broken up.
25 Jan. 1849 -	Brig "Hugh of Dublin," from Dublin to Trinidad, 3,000 *l.*; driven on shore in Denyogue Bay, near Kilkeel; general cargo; landed, and sold in a damaged state; vessel and materials sold, and afterwards broken up.
25 Jan. „ -	Schooner "Duchess of Gloucester," 800 *l.*; driven on shore in Kilkeel Bay; cargo, pig iron, and vessel saved.
25 Jan. „ -	Sloop "Lovely," 100 *l.*; struck on Carlingford Bar; running in cargo, slates; saved in Greencastle.
20 Mar. „ -	Schooner "Rover," 1,300 *l.*; ran on shore in Dundrum Bay; cargo, slates and railway iron; vessel and cargo saved.
9 Aug. „ -	Ketch "Gypsy," 1,000 *l.*; ran on shore in Dundrum Bay; cargo, oak plank for the navy; lightened; vessel got off and proceeded to Pembroke.
6 Dec. „ -	Schooner "Pheasant," 1,100 *l.*; driven on shore at Ballagan Point; cargo, Indian corn; lightened; vessel got off without damage.
16 Mar. 1851 -	Smack "Pharos," 700 *l.*; struck on the bar when proceeding for the harbour, and received slight damage; cargo, herrings.
29 Sept. „ -	Brig "Orford," of Workington, 500 *l.*; ran on shore in Dundrum Bay; cargo, coals; landed and sold; vessel and materials sold; the former broken up; crew saved.
12 Feb. 1852 -	Sloop "Juliana," Beaumaris, 400 *l.*; ran on shore near the Bar of Dundrum; cargo, slates; crew and cargo saved; vessel sold and repaired.
7 Nov. „ -	Brig "Louisa," C. Austrian, 3,600 *l.*; ran on shore on Cranfield Point; cargo, Indian corn; saved, part in a damaged state; vessel total wreck; crew saved.
12 Nov. „ -	Smack "Three Brothers," 400 *l.*; vessel struck on the bar, and sunk; crew perished.

Appendix, No. 7.

RETURNS put in by Mr. *Ralph Ward Jackson*, and referred to in his Evidence of 29th July 1857.

(1.)

SHIPPING entered Inwards and Outwards, with Cargoes, in the Year 1856, from the following North-east Ports between *Flamborough Head* and *Berwick-upon-Tweed* inclusive, a distance of 120 miles of Sea Coast; excluding all Ships in Ballast which are not entered in the Custom-house Returns, but, for Refuge Harbour purposes, must be equally considered, and may be estimated to be not less than Three-fourths more than the laden Vessels.

PORT.	NO. OF VESSELS.	REGISTERED TONNAGE.	AVERAGE TONNAGE.
Berwick - - - - - -	666	41,298	62 tons.
1. Newcastle-upon-Tyne (with Shields) -	28,147	4,231,528	150 „
2. Sunderland (with Seaham) - - -	18,138	2,437,448	134 „
3. Hartlepool, and West Hartlepool - -	10,406	1,497,081	144 „
4. Stockton (with Middlesbrough) - -	4,011	417,225	104 „
Whitby - - - - - - -	916	43,775	48 „
Scarborough - - - - -	348	22,212	63 „
TOTAL - - -	62,663	8,690,567	

Average of the whole - - 139 tons.

A superior and larger class of sailing ships for the coal and merchandise trade, as well as many large and valuable coal and merchandise steamers, are becoming established from the above four coal ports (1, 2, 3, 4), between the River Tyne and River Tees inclusive; and enlarged refuge harbour accommodation therefore is the more necessary for this increasing size of vessel, for which the existing tidal rivers and harbours on that coast are of comparatively little practical use in bad weather and heavy seas.

(2.)

SHIPPING and EXPORTS of COAL and of Declared Value to Her Majesty's Customs of Merchandise Goods, exclusive of Coal from the above four Ports (Nos. 1, 2, 3, 4) between the River Tyne and the River Tees inclusive, a distance of less than 25 miles of Sea Coast, for the year 1856.

FROM	To Foreign Countries.			To London and other Ports of the United Kingdom.		To Foreign Countries.
	Vessels.		Coal and Coke.	Vessels.	Coal and Coke.	Merchandise.
	No. British.	No. Foreign.	Tons.	No.	Tons.	Declared Value.
						£.
Newcastle and Shields -	3,729	3,291	1,822,166	10,913	1,985,696	1,014,008
Sunderland - - -	1,605	1,077	727,001	6,736	1,347,842	190,345
Seaham - - -	240	165	70,776	3,489	652,085	490
Hartlepool and West Hartlepool - -	1,131	401	490,968	5,599	1,075,814	1,537,764
Stockton and Middlesbrough - - - -	176	462	107,775	1,192	154,238	414,343
	6,881	5,396	3,218,686	27,929	5,215,675	3,156,950
	5,396			12,277	3,218,686	
	12,277			40,206	8,434,361	

N.B.—The vessels above enumerated do not include the vessels carrying the merchandise mentioned in the last column.

Appendix, No. 7.

The above are exclusive of all merchandise goods imported into the same places, which are very considerable, and may be taken at more than half the value of the exports.

The number of vessels conveying this merchandise outwards and inwards is 20,496, being in addition to the above 40,206 vessels with coal cargoes alone.

The following statement shows the exports alone of coal cargoes and merchandise in a similar manner for the first six months of the present year, 1857.

EXPORT of COAL, and of Declared Value to Her Majesty's Customs of Merchandise (for the first Six Months of 1857).

FROM	To Foreign Countries.			To London and other Ports of the United Kingdom.		To Foreign Countries.
	Vessels.		Coal and Coke.	Vessels.	Coal and Coke.	Merchandize.
	No. British.	No. Foreign.	Tons.	No.	Tons.	Declared Value.
						£.
Newcastle and Shields -	1,881	1,504	903,673	5,113	942,674	786,222
Sunderland - - -	962	472	437,052	2,999	667,494	46,557
Seaham - - -	106	49	29,849	1,797	344,104	568
Hartlepool and West Hartlepool - -	537	595	238,687	2,450	570,199	791,419
Stockton and Middlesbrough - - - -	151	188	50,842	486	63,972	346,258
	3,637	2,808	1,660,103	12,845	2,588,443	1,971,024
	2,808			6,445	1,660,103	
	6,445			19,290	4,248,546	

N.B.—The vessels last above enumerated do not include the vessels carrying the merchandise mentioned in the last column.

(3.)

ESTIMATED REVENUE from the Hartlepool Harbour of Refuge.

REVENUE to arise from the above 62,663 laden ships, together with 46,998 (as the three-fourths additional for ships in ballast) when entering the Hartlepool harbour, all such shipping requiring to use the harbour, whether for shelter or otherwise, on an average three times a year, thus:—

No. of Ships.		Registered Tonnage.
62,663	with cargoes - - - - - - - -	8,690,567
46,998	In ballast estimated at the same *average* only of 139 tons per ship - - - - - - - - -	6,532,722
Total 109,661		Total 15,223,289

Calculating that ships trading with the above places make 12 voyages a year on an average, it will require 9,138 ships, as representing the above 109,661 arrivals and sailings, the whole of which, either laden or in ballast, pass or navigate the German Ocean within very easy distance of Hartlepool Bay, which is about the centre of the deepest part or bight of the exposed north-east coast, not one of which ships if caught in gales north-easterly, easterly or south-easterly (which are frequent) has any place on that coast to run to for refuge and protection, which is free from strong tidal currents and is available (as Hartlepool refuge harbour will be) at all times and states of tide, and from which a ship can weigh anchor and go to sea again at any time, without reference to tide.

Thus,

Thus, 9,138 ships, of an average of 139 tons, using the refuge harbour in Hartlepool Bay for all purposes three times in the year, at a calculated charge of 3½*d.* per register ton (which is the average of the three several maximum tolls of 1½*d.*, 3*d.*, and 6*d*, prescribed in the Third Schedule of the Hartlepool Refuge Harbour Act of 1855), a revenue would be derived from the above source alone of *55,570l. 9s.*

The following are the maximum tolls which the Hartlepool Refuge Harbour Act of 1855 prescribes shall be payable on ships when entering within the limits of the refuge harbour for refuge purposes only. For example, on a ship of 139 tons register:

These Charges, up to 100,000*l.*, being expended on the Refuge Harbour:

	£.	s.	d.
If in ballast, at 1*d.* per ton register, with 8*d.* per ship additional	–	12	3
If laden at 2*d.* ditto ditto	1	4	6

These Charges after the 100,000*l.* be expended:

If in ballast, at 2*d.* per ton register, with 8*d.* per ship additional	1	4	6
If laden at 4*d.* ditto ditto	2	9	–

These Charges after 250,000*l.* be expended:

If in ballast, at 3*d.* per ton register, with 8*d.* per ship additional	1	16	9
If laden at 6*d.* ditto ditto	3	13	6

(4.)

ESTIMATED REVENUE to *Hartlepool* Refuge Harbour, supposing a Uniform District Tonnage Toll charged.

IF a uniform tonnage toll were charged on all ships entered inwards and outwards with cargoes at the above several ports between Flamborough Head and Berwick-upon-Tweed, the revenue to arise from that source, calculated on the basis of the above entries of 62,663 laden ships (Table No. 1) in the year 1856 would be thus:—

Number of Ships with Cargoes.	Registered Tonnage.		£.	s.	d.
62,663	8,690,567	At ½*d.* per register ton	18,105	7	–
,,	,,	At 1*d.* ditto	36,210	14	–
,,	,,	At 1½*d.* ditto	54,316	1	–

COMPARISON of *Hartlepool* Refuge Harbour Tolls by a Uniform District Tonnage, or only when Harbour actually entered.

EXAMPLE.	If a Refuge District, Toll per Voyage. Annual. £.	s.	d.	If a Charge made when Harbour only used; calculated for Three Times a Year, and at 4½*d.* per Ton (the average of 3*d.* and 6*d.* in the Third Schedule of the Refuge Harbour Act, with 8*d.* per Ship additional, as in the Fourth Schedule). Annual. £.	s.	d.
On a 100-ton ship, on an average of 12 voyages a year at ½*d.* per ton	2	10	–			
Ditto at 1*d.* ,,	5	–	–	5	13	2
Ditto at 1½*d.* ,,	7	10	–			
On a 200-ton ship at ½*d.* ,,	5	–	–			
Ditto at 1*d.* ,,	10	–	–	11	5	8
Ditto at 1½*d.* ,,	15	–	–			
On a 300-ton ship at ½*d.* ,,	7	10	–			
Ditto at 1*d.* ,,	15	–	–	16	18	2
Ditto at 1½*d.* ,,	22	10	–			
On a 139 (as the average) ton ship at ½*d.* ,,	3	9	6			
Ditto at 1*d.* ,,	6	19	–	7	17	–½
Ditto at 1½*d.* ,,	10	8	6			

Appendix, No. 7.

(5.)

SHIPPING entered Inwards and Outwards, with Cargoes, in the Year 1856, at the entire Ports of the *United Kingdom*, of the *Isle of Man*, and of the *Channel Islands*.

	NO. OF VESSELS.	REGISTERED TONNAGE.	AVERAGE TONNAGE.
In England - - - - -	306,919	40,799,495	133 tons.
„ Scotland - - - - -	52,381	5,864,020	112 „
„ Ireland - - - - -	39,240	5,456,462	139 „
TOTAL of United Kingdom - -	398,540	52,119,977	131 „
Isle of Man - - - - -	2,916	198,152	68 „
Channel Islands - - - -	8,619	711,466	82 „
TOTAL - - - -	410,075	53,029,595	Average 130 tons.

Ralph Ward Jackson.

Appendix, No. 8.

Appendix, No. 8.

PAPERS delivered in by *Joseph Cowen*, Esq., 3 August 1857.

RIVER TYNE IMPROVEMENT.—PIERS AT ENTRANCE.

THE REPORT of *James Walker*, Esq., LL.D., F.R.S.L. & E., &c. addressed to the Tyne Improvement Commissioners, dated 15 November 1853.

Sirs,

Introduction. AS the subject of this Report (the piers for the entrance of the River Tyne) is one of general interest and of great public importance, it may be proper to preface my observations by stating, for the information of others not so well acquainted with the details as the Lords Commissioners of the Admiralty and the Tyne Improvement Commissioners, my own position and the course of my proceedings.

The matter under consideration first came before me in the character of Admiralty Inspector, under the Preliminary Inquiries Act, when a Bill for these works was pending in Parliament, which Bill passed in the year 1852.

Appointment. A difference of opinion having been found to exist between the Admiralty and the Tyne Improvement Commissioners—or perhaps, I should say, between the professional advisers of the two bodies and others—as to the plan within the limits of deviation proper to be adopted, a letter from Mr. Clayton, the officer of the Tyne Improvement Commissioners, of the 18th April last, addressed to the Secretary of the Admiralty, suggests "that if their Lordships would approve of the plan being submitted to Mr. Walker, there would be a probability that the Commissioners would feel themselves justified in acquiescing in any alteration in the plan he might decide upon."

The reply of the Secretary to the Admiralty, dated 6th May 1853, states "that their Lordships have long felt the necessity of placing the entire responsibility of the plans for the works at the entrance of the Tyne with an eminent engineer, in whom their Lordships, the Tyne Commissioners, and the public might place confidence; and that if the proposal made by the Commissioners be acceded to, it should be understood that the plans of works, when completed by Mr. Walker upon his individual responsibility (after taking all necessary evidence), should be final and accepted by the River Tyne Commissioners, and not to be deviated

deviated from, unless with the concurrence of the Admiralty; and that Mr. Walker be left entirely unfettered, within the limits of deviation of the Act of last year, to select or modify any proposed plan, or to originate any other plan, as he might deem proper, to cover his responsibility in so grave a question." The letter adds, "that in the instructions to be given to Mr. Walker, he should be called upon to provide for the removal of the 9-feet Bar by means of dredging, to the depth of 14 feet at low-water spring tides, as a work which their Lordships insist on being executed." Appendix, No. 8.

In answer to the above, Mr. Clayton, on the 14th June, stated to the Lords of the Admiralty, "that he was authorised by the Tyne Improvement Commissioners to accept the appointment of Mr. Walker in the terms of their Lordships' letter, and that the Commissioners would readily take such steps as he might direct for the removal of the 9-feet Bar."

The next letter is from the Secretary to the Admiralty, dated the 16th June, and acquaints the Tyne Improvement Commissioners "that Mr. Walker had been informed that their Lordships require he should receive, on the part of the Admiralty, the evidence of Captain Washington, R.N., Mr. Calver, R.N., and Captain Vetch, R.E., on the matters to be dealt with, and such other evidence as the Tyne Improvement Commissioners might propose, or Mr. Walker might judge necessary as preliminary to designing the work, which he is to be left entirely unfettered to adopt."

My instructions from the Admiralty are in substance precisely the same as those contained in the above correspondence, and therefore I need not repeat them.

So soon as I had received the above instructions in an official communication, dated the 8th July, with a copy of the above-quoted Admiralty correspondence, I immediately referred to and examined the evidence which, as "Inspector for the Admiralty" under the Preliminary Inquiries Act, I had taken at Newcastle and in London in the months of March and April 1852, when the Bill for the Improvement of the Tyne, by the erection of Piers at its mouth and otherwise, was before the House of Commons. Mr. Clayton attended on that occasion, as solicitor for the Bill, and Mr. Leitch, the town clerk of Tynemouth, for the parties opposing it. The witnesses examined were—Mr. Wake, harbour master; Mr. Brooks, engineer; Mr. Thomas John Taylor, mineral agent; Mr. Calver, R.N.; Mr. Charles Carr, engineer; Mr. Nicholson, engineer; Mr. Gibson, who bored the ground; Captain Purdo, R.N.; Mr. Shotton, shipowner; Mr. Straker and Mr. Popplewell, Tyne Improvement Commissioners; and Mr. Barker, shipowner. Mr. Rendel, the engineer, was also examined to some extent; and, although the inquiry included docks and other matters as well as piers, all the witnesses who had considered the latter gave their opinions respecting them; and the subject has since had my almost constant attention from the middle of July to the present time, both in the surveys I have made with reference to it, and in the examination of surveys and evidence from 1813 (the date of a very detailed and valuable survey and observations made by Mr. Giles and Mr. Comrie, for the late Mr. Rennie) down to the late surveys in 1849 by Mr. Calver, for the Admiralty, and by Mr. Comrie again for Mr. Rendel, the engineer employed by the Commissioners. Proceedings and evidence, 1852.

The examination of witnesses in London, Tynemouth, and Newcastle, extended, with intermissions, from the 19th July to the 19th August. My junior partner, Mr. Cooper, who is well qualified to assist me, attended these examinations. In addition to Captains Washington and Vetch and Mr. Calver (the three gentlemen specially named by the Admiralty), there were present Mr. Wake, harbour master; Mr. Brooks, engineer; also Messrs. Harrison, Purvis, Young, and Oates, pilots; Messrs. Robinson, Stevenson, Lourie, and Straker, Tyne Improvement Commissioners; Mr. Robert Anderson, shipowner, of South Shields: Mr. Raine, a member of the Trinity House; Mr. Danson, harbour master, of Newcastle; Mr. Thomas John Taylor (who in 1851 published his opinions on the subject of the harbour and piers); Mr. Thomas Smith, the extensive shipowner and shipbuilder; Mr. Holt, superintendent of submarine works; Mr. Comrie, surveyor; and Captain Linskill, who produced a copy of a design for docks and piers, which he stated to have been proposed by Mr. Brooks, in 1848. Captain Linskill's evidence was taken by me in London on the 19th August. He then informed me that the South Shields and Tynemouth authorities did not consider that they had sufficient notice of my visit to enable them to attend the Tynemouth meeting with their evidence. My reply was, that all my correspondence had been with Mr. Clayton, as the officer of the Commissioners, and that I had depended upon him for informing others of the time of my visit and for giving due notice of it. This gave rise to a correspondence with Mr. Leitch; and, in the end, as I thought that to close the inquiry without giving a further opportunity for receiving evidence, even if no fresh information should be produced, would have the effect of leaving open a door for objections, I gave notice to T. C. Leitch, Esq., town clerk, Tynemouth; C. H. Greenlaw, Esq., secretary to the Shipowners' Society, North Shields; Thomas Salmon, Esq., town clerk, South Shields; G. Potts, Esq., secretary to the Shipowners' Society, South Shields; and to the Tyne Improvement Commissioners, that I should attend again at Tynemouth on the 28th September. Proceedings and evidence, 1853.

On this last occasion, I was met by Mr. Clayton, for the Tyne Improvement Commissioners; Mr. Leitch; Messrs. Barker, Shotton, Straker, and Greenhow, for the Tynemouth (North Shields) Shipowners' Society; Mr. Alderman Bartleman, Mr. Procter,

Appendix, No. 8.

Mr. Carr, and others, for the North Shields Committee of Trade; and Mr. Stainton, Mr. Thomson, Mr. Salmon (town clerk), and others, for the Corporation of South Shields. The witnesses called by the above gentlemen were Mr. Brooks, Mr. Stevenson, Mr. Barker, Mr. Wake, Mr. Shotton, Mr. Greenhow, Captain Purdo, Mr. Hutcheson (pilot), and Mr. Hall (steam-tug proprietor).

Various designs.

Thus I hope that, so far at least as regards the receiving evidence and collecting opinions, I have done justice to the subject. I may add, that I do not remember the case of a harbour to the improvement of which so much attention has been paid on all sides, in the way of designing and reporting, from 1813, the date of Mr. Rennie's plan, up to the present time. This is a proof of the importance of the subject, of the interest taken in it, and, I may say also, of its difficulty, when I refer to the variety of the designs that have been made by eminent and experienced men. These have been kindly produced to me, and I have also been informed by the authors of the grounds on which their designs have been recommended.

Designs.

It would be extremely difficult, if not impossible, to describe the different plans in words, so as to give any correct idea of them, or to state exactly in what respect each differs from the others. At the same time, I am desirous to do justice to their authors, and have, for the better enabling me to consider their various features, had the whole drawn out to the same scale, a copy of which, and also of my notes containing the substance of the evidence taken by me, can be sent to you if you desire it. The designs referred to are those of the late Mr. Rennie, Mr. Rendel, Mr. Brooks, Captain Washington, R.N., Captain Vetch, R.E., Captain Purdo, Mr. Calver, R.N., Mr. Thomas John Taylor, and Mr. Henry Turner.

Each of the designs has its merits; but for me to enter into a detailed criticism of the peculiarities of each would be a laborious task, attended with little, if any practical good. My duty has been to consider them all, and to endeavour to make from them and from my own and Mr. Cooper's observations, and from the evidence, such a design as should remove the present evils and dangers at the entrance, and produce at the same time as little as possible of countervailing evil. I am fully aware of the heavy responsibility of the task which I have undertaken, and have done my best to fulfil it.

The Bar.

The present great evil, to the removal of which all the designs (including the design which I am about to recommend) have been directed, is the bar. This has been generally proposed to be effected by confining the ebbing water of the river and harbour, and directing it upon the bar at the entrance, instead of allowing it to escape over the Sparrow Hawk and other sands. But the difficult question to solve is, can this increase of velocity and depth through the narrowed space between the piers be contrived so as not to have the effect of causiug a similar deposit outside the piers, and thus forming a bar there?

It is, in my opinion, clear that if the outgoing current and the passing (south to north) ebbing tide were in the same direction and of the same velocity as at present, and if the same quantity of sand were still to be admitted by the flood tide into the harbour and river by the Wheel, and afterwards to be passed out during the ebb tide, the same causes would produce the same effect as they do at present, viz., a bar, but outside the present one. For the position of the bar is by no means fixed: it is at the point where the opposing forces, west to east, and south to north, meet or balance, and it would be moved out beyond the piers if this balancing point were moved out by increasing the current between them.

Reasons for less bar.

My expectation, however, is, that all these conspiring causes of a bar would be modified, and the effect of them, to say the least, very much diminished, by the adoption of the design hereafter described; for the following reasons, viz.:—

That all the outgoing water, being confined by piers instead of spreading over so wide a space as at present, would, at the ends of the piers, join the coast tide passing from south to north, with increased velocity or energy.

That the sand would be brought out to where there is deeper water, and therefore the same quantity deposited would not produce a bar of the same height as at present.

That the south to north ebbing tide, to which the piers would be extended, may be expected to be stronger when confined or collected in passing the ends of the projecting piers, and thus to check the formation of a bar.

That the operation of a south pier, even if but a short one, which Captain Washington and other naval gentlemen think likely to be sufficient, would stop a large portion of the sand that is now carried into the harbour during the flood tide by the Wheel, so that there would be less sand to go out again on the ebb.

Nine-feet Bar.

I think also, that the artificial straightening and regulating of the channel at the "Stones," called, in my instructions, "The 9-feet Bar," for the removal of which the Lords of the Admiralty make a positive stipulation, and to which you have assented, will have a beneficial tendency both above and below it. Therefore I strongly recommend that this be set about seriously and without delay, not only as a compliance with the agreement made with the Admiralty, but on account of the effect to be expected from it. This would be done by the usual process of dredging, aided by diving, to raise loose boulders, or by blasting, if the material to be removed is solid rock.

Bar, and Sparrow Hawk Sands.

The general observation of a sympathy between the bar and the Sparrow Hawk has been considered as a proof of the effect which confining the water between the piers would have.

It

It is remarked, that at present, when the bar is low (good) the Sparrow Hawk is high, from which it would appear that the two facts are connected; but the Sparrow Hawk being high, is, I think, rather the effect of the good bar than the cause of it. The sand that forms the bar is deepened by the scour of the river, chiefly during land freshes with westerly winds; and when so deepened, there is, after the freshes have gone off, a greater channel for the ebbing water to escape in the straight line, and therefore a comparatively less quantity and velocity upon the site of the Sparrow Hawk; thus allowing a deposit upon it, and a rising of its surface. There is also, in times of these freshes which lower the bar, less room in the river for tidal water to enter; and then all the sands, both the Sparrow Hawk and the Herd, over which the flowing and ebbing tide passes, have a tendency to rise. When there is no fresh, or when the action of a fresh is checked by easterly winds, these causes cease to operate, the sand or bar in the straight channel begins to rise, and a large portion of the ebbing water is diverted over the Sparrow Hawk, so as to deepen it.

On one point there was a unanimity of opinion among all parties, that to confine the outgoing current over what is now the bar, must, by increasing the velocity, deepen the channel.

Reasons for present design.

In the position and direction of the piers which I have designed, I have been influenced by various considerations, besides that of the removal of the bar. The following are the principal, viz.:—

1. To give heavy seas space to spread and spend themselves immediately after passing the piers; so that vessels, having got inside the piers, may be in quieter water; in a kind of outer harbour.

2. Not to lessen materially the extent or area of sloping sand, which is useful, not only for the above purpose, but also for vessels beaching upon it, in case of their being obliged to do so. Towards these objects I consider the particular form and depth of Prior's Haven to be favourable; and therefore I propose the north pier to start from the northern side of the haven, so as to include it in the harbour. This will also be better, as regards the use made of Prior's Haven by the inhabitants, than starting from the Spanish Battery, which would leave the haven outside.

3. To enable vessels, entering with scant northerly or southerly winds, to haul up close under either the north or south pier, and so to escape getting upon a lee shore, and (owing to the proposed height of the piers) to be sheltered from the violence of the winds: this they would be as soon as they should get inside or round the Heads, and would thus escape the dangers of the Herd Sand and the Black Midden Rocks. From the action of the north to south current of flood tide being upon their broadsides, vessels are at present liable to be driven upon the Herd Sand, particularly when, from the want of depth of water upon the bar, they are but little under command of the helm. But with the piers as proposed, even if vessels were to get ashore, it would be in smoother water, and the danger to ships and crews would be much less than at the present time, when they are quite exposed.

4. To give to laden outward bound ships shelter from the worst winds until they clear the pier heads, and get into deeper water; and,

5. To enable tug boats to get further out to assist ships in entering or leaving the harbour.

North and South Piers.

Several of these advantages would be obtained from the north pier only, and therefore I consider the north pier as the more important, and the one which ought to be proceeded with at once; but I do not think that the cure of the present evils will be complete without the south pier also. I have named the use of some south pier as a preventive to the Wheel, which not only carries sand into the harbour, but prevents the fair run of the tide between the Bar and the Narrows. In this I think nearly all the witnesses agree; but there is great difference of opinion as to the extent proper for the south pier. The result of my consideration, which is also in conformity with the majority of the opinions I have received, is, that the south pier should be carried out so far as to protect the entrance from southerly storms, and thus to lessen the danger of vessels being driven upon the rocks (viz., the Black Middens, Freestone Points, &c.) on the north side, which are naturally of a more dangerous character than the Herd Sand on the south. In one respect, indeed, it may be argued, and with some show of reason, that the north pier alone would rather increase the difficulty of vessels entering, by throwing off the flood tide, the tendency of which at present is to counteract the force of southerly winds upon vessels until they get inside the rocks that are off the Spanish Battery; but, although the north pier will throw off the current and change its direction, the wheel or eddy tide into the harbour will continue until it be shut off by a south pier of such a length as to confine the flood current entering the harbour to the width between the piers; and as this width is proposed to be only such as is required for the purpose of an entrance, the water flowing inwards, being through a channel of considerable depth, will not be likely to carry so much sand in with it. This would not be the case with a much shorter south pier, or with a wider entrance; but, as was remarked by some of the witnesses, there will be, during the execution of the works, the opportunity for the Commissioners to feel their way, observing effects as the south pier proceeds, and regulating the extent of this pier accordingly.

Appendix, No. 8.

Channel between Narrows and Pier Heads.

I consider the quantity and velocity of the ebbing stream to be such as, with the removal of the "Stones," to secure a nearly straight channel in the comparatively short distance between the Narrows and the Pier Heads; but if side training should be required for removing any deviation from a proper channel course, this can easily be done at low water, and without exposing vessels to damage, should they come in contact and rub upon it.

Interfering with tidal flow.

As to any interruption that the piers may offer to the full flow of tide into the harbour, I would only observe, that the flood current just outside the bar is at present little more than one mile per hour, and that the width between the piers is proposed to be 1,100 feet; while the total width of Shields Harbour opposite to the new quay is only 920 feet, and at the Narrows still less.

Taking these considerations together, I do not think that the tendency which any construction would naturally have to throw off the flood tide would amount to a practical obstruction, but rather, that the width of entrance which I have proposed may be found to admit the heavy seas too freely, and that experience may show a further contraction to be desirable. The objects to be attained on the one hand are the removal of the bar, and shelter from heavy seas, and to make the width between the piers such as to accomplish these ends, without, on the other hand, excluding the flood tide, or increasing materially the velocity of the ebb during freshes, and so as not to interfere injuriously with the entrance of ships. If these objects are opposed to each other, absolute perfection in all of them is not to be expected; but such an arangement should be attempted as may effect the more important purposes, without producing a conflicting evil to an extent that may prove equally injurious.

Description of Plan.

A reference to the accompanying Plan and Sections will be more explanatory than any written description.

North Pier.

It is proposed that the north pier shall start from the rocks under Tynemouth Castle. To have gone still further north, as to Lighthouse Point, would be attended with advantages, but would be considerably beyond the limit of deviation; the work would be longer, and in deeper water; and its construction would therefore be attended with greater expense. The general direction is nearly south-east; the length, 700 yards. The foundation, up to near low water, and the core or hearting, except at the head, will be deposited from barges or waggons; and the facing from low water upwards will be paved or walled, at such slope or angle from the perpendicular as the material will admit. The accompanying Sections show walls nearly upright above low water. The extreme height or parapet of this pier is shown by the section to be 24 feet above high water. Below this is an esplanade, 12 feet wide, which may be so made as to afford shelter in recesses underneath it, from the spray in storms; and 10 feet under the esplanade, a quay 18 feet wide and 10 feet above high water. These are the supposed average dimensions.

South Pier.

The south pier is proposed to start from the shore opposite to the workhouse, as in the Parliamentary plan, and to take an E.N.E. direction; the length, as shown by the plan, being 1,400 yards. It is intended to be of somewhat similar construction to the north pier, but on the average of less width and height, decreasing gradually from the head towards the shore.

Materials.

Both piers are supposed to be of stone; the hearting being of rubble of all sizes; the facing, of large stone, laid in concrete or cement or mortar, where these can be used with effect. For the heads, copings, and other principal facings, well squared durable stone will be necessary. Mr. Brooks expects that a great proportion of the whole quantity of stone required will be supplied from Trow Point, which fronts the sea at about a mile south of the Tyne, and also from the lands west of Sharpness Point; and so far as our (Mr. Cooper's and my own) inspection of the rocks enabled us to judge of the quality of the stone, we think this, particularly as respects the south side, to be probable; but that for the facing of the walls and of the foreshores a still harder stone will be required. A railway may be laid along the shore quite to the south pier; and the stone may also be boated across to the north pier, should the quality of the intended north quarries be found inferior, which there is some reason to expect.

Lights.

A light is supposed to be shown at each pier-head, which will be very valuable guides to the entrance.

Comparison of Plan with former plans.

I have stated the principal reasons for the plan submitted by me, and I do not see that the same objects could be effected by any other very different design. It varies in some respects from all the designs, but perhaps corresponds more nearly with the Parliamentary plan of 1852 than any other. You, with Mr. Brooks as your professional assistant, appear to have profited by the observations and suggestions of others, and to have modified and improved upon former designs, as may be seen by reference to Mr. Brooks's plans of 1832, 1845, 1848, and 1851, and the others before referred to. The north pier of the Parliamentary plan was projected to start from the Spanish Battery. In this respect, as well as in the shape and direction of the outer portion of both piers, and in the width of entrance, the principal differences exist. Indeed, in principle and substance the accompanying Plan and Report may be considered as containing an abstract of parts of the designs or evidence of most of the scientific and practical witnesses; but all these gentlemen must pardon my saying, that the causes of some of the local complaints for which they prescribe local remedies will be removed by the operation of the outer piers; so that, at any rate, the execution of inner

inner works had better be postponed until the effect of the outer works be tested. This observation applies particularly to the inner piers, which form a feature in Mr. Rendel's plan, and on which a good deal of evidence was given. To protect the cliff under the Old Barracks from being washed by heavy seas and the materials of it from being carried into the harbour, would be an undoubted advantage. This object would be more effectually and more cheaply accomplished by a wall under the cliff, than by a pier or wall at the edge of the navigable channel; but there will be ample time for considering and determining on this also when the external south pier shall be built, for a portion of its length, out from the shore.

I am, &c.

To the Tyne Improvement Commissioners, &c. &c. &c.

(signed) *James Walker.*

REGISTERED SHIPS and TONNAGE of the North-east Ports, including Steam Vessels.

	Parliamentary Return, 1856, for the Year 1855.		Parliamentary Return, 1857, for the Year 1856.	
	Ships.	Tons.	Ships.	Tons.
The Tyne	1,655	380,150	1,704	391,870
The Wear	992	233,324	1,027	239,335
TOTAL Northern Group	2,647	613,474	2,731	631,205
Hartlepool	181	38,684	186	40,020
The Tees	166	28,575	164	29,900
TOTAL Southern Group	347	67,259	350	69,920

Total Value of Shipping, 1856, in Northern Group - £. 5,049,640

Total Value of Shipping, 1856, in Southern Group - 559,360

SHIPS and TONNAGE cleared Outwards from the North-eastern Ports.

	Parliamentary Return, 1856, for the Year 1855.				Parliamentary Return, 1857, for the Year 1856.			
	Ships.	Tons.	Inwards and Outwards.		Ships.	Tons.	Inwards and Outwards.	
			Ships.	Tons.			Ships.	Tons.
The Tyne	19,331	2,912,658	38,662	5,825,316	19,777	3,025,287	39,554	6,050,574
The Wear	13,652	1,782,803	27,304	3,565,606	14,241	1,946,140	28,482	3,892,280
TOTAL Northern Group	-	-	65,966	9,390,922	-	-	68,036	9,942,854
Hartlepool	7,963	1,124,711	15,926	2,249,422	8,172	1,182,521	16,344	2,365,042
The Tees	2,164	226,458	4,328	452,916	2,743	277,207	5,786	554,414
TOTAL Southern Group	-	-	20,254	2,702,338	-	-	22,130	2,919,456

Appendix, No. 8.

NUMBER and Amount of BRITISH and FOREIGN SHIPS and TONS that Cleared from the North-eastern Ports.

	Parliamentary Return, 1857, for the Year 1856.		TOTAL Inwards and Outwards for 1856.	
	Ships.	Tons.	Ships.	Tons.
The Tyne - - - - - British	16,002	2,434,563	32,004	4,869,126
Ditto - - - - - - Foreign	3,775	590,724	7,550	1,181,448
The Wear - - - - - British	12,971	1,773,736	25,942	3,547,472
Ditto - - - - - - Foreign	1,270	172,404	2,540	344,808
TOTAL Foreign in Northern Group - -	- -	- - -	10,090	1,526,256
Hartlepool - - - - - British	6,739	1,000,941	13,478	2,001,882
Ditto - - - - - - Foreign	1,433	181,580	2,866	363,160
The Tees - - - - - British	2,224	224,352	4,448	448,704
Ditto - - - - - - Foreign	519	52,855	1,038	105,710
TOTAL Foreign in Southern Group - -	- -	- - -	3,904	468,870

AVERAGE SIZE of VESSELS that Entered and Cleared the North-eastern Ports in 1856.

	Tons.
The Tyne - - - - - - - - -	155·7
The Wear - - - - - - - - -	136·6
Average of the Northern Group - - -	146·15
Hartlepool - - - - - - - - -	144·7
The Tees - - - - - - - - -	101·
Average of the Southern Group - - -	122·85

CUSTOMS DUTIES paid in the North-eastern Ports for the Year ended 31 March 1856.

	£.
The Tyne - - - - - - - - -	433,093
The Wear - - - - - - - - -	112,340
Total Northern Group - - -	545,433

	£.
Hartlepool - - - - - - - - -	15,997
The Tees - - - - - - - - -	88,944
Total Southern Group - - -	104,941

TOTAL

Appendix, No. 8.

TOTAL Number and Amount of BRITISH and FOREIGN SHIPS and TONNAGE, Entering and Clearing *England, Scotland, Ireland,* &c., 1856.

	BRITISH.		FOREIGN.	
	Ships.	Tons.	Ships.	Tons.
England	272,162	32,867,164	34,757	7,932,331
Scotland	47,272	5,230,892	5,109	623,128
Ireland	38,457	5,274,442	783	181,620
Isle of Man and Channel Islands	11,211	879,959	324	29,659
TOTAL United Kingdom	369,102	44,252,457	40,973	8,766,738

AVERAGE SIZE of SHIPS for *England, Scotland, Ireland, United Kingdom,* and *London* 1856.

	Tons.
England	132·8
Scotland	111·7
Ireland	139·
Isle of Man and Channel Islands	78·8
The United Kingdom	129·14
London	190·98

A brief STATEMENT of FACTS in favour of the Construction of a HARBOUR of REFUGE at the River *Tyne,* by the Deputations from the Tyne Improvement Commissioners, and the several Corporations of Newcastle-upon-Tyne, Gateshead, South Shields, and Tynemouth, the Newcastle-upon-Tyne, Shields, and Gateshead Chamber of Commerce, and the Shipowners' Societies of Tynemouth and South Shields.

FOR many years the north-east coast of England has been the scene of numerous disastrous wrecks, by which a great number of lives have been sacrificed, and a large amount of property destroyed.

According to the last published Wreck-chart of the Admiralty, there were in 1852, within 30 nautic miles of the Tyne, 125 vessels wrecked; and within little more than 70 miles of it, north and south, there were in the same year 237 wrecks, of which 122 were attended with the total destruction of the vessels; which constituted nearly one-fourth of the entire wrecks upon the coasts and seas of the United Kingdom.

In the same year, in a single gale, on the 26th, 27th, and 28th of October, at the Tyne and within 30 miles of it, 47 wrecks occurred, and 69 lives were destroyed in the most terrible manner.

In January of the present year, in a gale from the east-south-east, within three days, there were 110 vessels driven ashore within 30 miles of the Tyne, in which a number of people perished. Several vessels also were caught in the same gale and have never since been heard of, having probably foundered in attempting to keep the sea rather than run the risk attending the attempt to enter any of the dangerous harbours on the north-east coast.

A large fleet in this emergency attempted to enter the Tyne, and from amongst it not less than 36 valuable ships, in those three days, were driven on shore upon the rocks and shoals at its mouth, of which only one-fourth part (nine vessels) belonged to the port, and 28 of which, within a week, became total wrecks. Thus was sacrificed in one gale property to the amount of nearly 100,000*l.*, and, what is of still more consequence, several lives, under the most appalling circumstances.

Appendix, No. 8.

At the same time, upwards of 200 vessels caught by the storm to the south of the three northern ports fled past them to Scotland, in front of those terrible precipices which skirt the coast, and threaten destruction every hour.

In this gale not less than a quarter of a million sterling in value of property was lost upon the north-east coast.

All these disasters are to be ascribed to the dangerous nature of that coast, upon which an extraordinary number of vessels are at all times exposed.

For upwards of 200 miles, from the Humber to the Firth of Forth, there is an iron-bound coast, mingled with shores of treacherous sands; and in all that distance there is no certain place of shelter to leeward in heavy gales. On such a coast, so beset with dangers, there are exposed, during the year in the North Sea, not less than 135,000 ships of all nations, besides vessels of war. The rivers Tyne, Wear, and Tees, with their dependent ports, have themselves, during the year, about 102,000 vessels entering and leaving their harbours; and every day in the year there are, on an average, 287 vessels on their sea-board; so that no gale can arise that does not at once jeopardise a large amount of valuable life and property; while, on some occasions, there are not less than 1,000 ships and crews exposed to the same fate.

The River Tyne is thus, within about 70 miles, the centre of nearly one-fourth of the total number of wrecks of the kingdom; and within 30 miles has nearly one-fifth of its trading tonnage, amounting to upwards of seven-and-a-half millions of tons.

These coasts, then, so terrible, and so productive of death and disaster, and at all times involving the safety of so many lives and so much property as to become of national importance, require some harbour of refuge in the storm.

The Tyne is peculiarly adapted for that harbour of refuge.

It possesses more tonnage than any other port on the north-east coast, and has in its capacious harbour a greater anchorage area. At one time, in a long-continued storm, it contained nearly 1,500 laden vessels afloat at all times of the tide. It has great maritime advantages, and being so much frequented, its navigation is well understood, and it is even now preferred amidst its dangers in a gale to any other north-east port.

A less frequented port, or a harbour constructed on any part of the coast exclusively for a harbour of refuge, in a heavy gale, would have its dangers enhanced by want of practical knowledge of its channels, bearings, and soundings, or its advantages refused for want of confidence in its security. The Tyne has a bar passage of 660 feet, and 7 feet depth of water over it at low tide, giving about 23 feet water in the flood.

By certain constructions suggested by eminent engineers, and approved and extended by the distinguished engineer appointed by the Admiralty, Mr. Walker, at least 8 feet more water, it is confidently expected, will be obtained, giving in spring tides upwards of 31 feet water on the bar; at the same time the width of its entrance will be extended to 1,100 feet, affording thus in all weathers a safe and direct passage into its capacious harbour to vessels of all sizes and of the heaviest tonnage, whether merchantmen or men of war.

The ready means for accomplishing the work is all that is required.

Already the Legislature and Government, impressed with the necessity of harbours of refuge, have applied annually upwards of 200,000*l.* for their construction at Dover, Harwich, Portland, the Channel Islands, and Holyhead, all of which harbours united do not possess more than one-fourteenth of the trading tonnage of the Tyne.

The Tyne Improvement Act of 1852 enables money to be levied on its shipping to the amount of 200,000*l.* for the construction of works at its mouth for rendering it safer and more accessible. Owing, however, to the slow process of raising the amount by local taxation, and the consequent delay in the execution of such works for many years, more property will be lost to the country by wreck during the time deferred than would probably have constructed such works, while hundreds of lives will also thus be sacrificed. Delay on this matter is not only dangerous, but certain death to many. It is believed that a representation to the Legislature and Government cannot fail under such circumstances to receive the most favourable consideration, as they have granted such liberal support to harbours so much inferior in magnitude and in disaster.

Every day that the works at the Tyne are left undone leaves a large proportion of the shipping of the kingdom exposed to the most dangerous risks. At any hour the storm may sweep over the coast, and again give to destruction, as it did in the last gale, another quarter of a million of property, and bury hundreds of human beings amidst its wreck.

This is no local question.

The whole shipping of the world is more or less interested in it. Self-interest, as well as humanity, demand urgent attention to it.

At a moment when the gallant seamen of Britain are preparing to defend their country, and shed their blood for her and her interests, adding fresh laurels to her brow, it would bind them still more closely to her to give them for the future better security against the fearful conflicts of the storm, in which no courage can avail—but to enable them to die as becomes themselves and their country.

This case of a harbour of refuge at the Tyne is earnestly submitted to all who may be interested in the question, as who is not, of the preservation of brave seamen from premature and terrible death and national property from destruction.

TABLE of STATISTICS, in support of the "Statement of Facts" in favour of a HARBOUR of REFUGE at the *Tyne*.

	Entered Inwards and Outwards with Cargoes, from Parliamentary Return, 6 April 1853, No. 299.		Wrecks from Admiralty Wreck Chart, 1853.				HARBOURS.		
			Within 10 Miles.		Within 20 Miles.		Bar Entrances.		Anchorage Area.
	Ships.	Tonnage.	Wrecks.	Total Wrecks.	Wrecks.	Total Wrecks.	Depth at Low Water.	Width at Low Water.	
							Feet.	*Feet.*	
(1.) Newcastle—Tyne	27,233	3,730,255	66	31	103	48	7	660	Has contained 1,500 vessels at the same time riding at moorings afloat. Is capable of harbouring 2,000 vessels.
(2.) Sunderland—Wear	16,597	2,131,278	60	28	100	46	4	300	Will not contain 300 vessels in the harbour without the docks.
(3.) Hartlepool (Bay of Tees.)	10,117	1,370,789	40	18	100	47	3	150	Dry harbour.
(4.) Stockton—Tees	4,258	422,279	38	17	75	45	From 7 to 6½ series of bars for 1½ mile.	Uncertain and irregular.	Not room for 300 vessels of small draught. Average size of vessels, 101 tons.
TOTAL Tonnage of the North-east Ports	58,205	7,654,601							
(5.) Harwich	1,228	74,074	13	6	57	35	Harbour of refuge.		
(6.) Dover	699	53,323	5	2	38	17	ditto.		
(7.) Portland	Nil. No record in Parl. Paper.	Nil.	9	6	21	11	ditto.		
(8.) Channel Islands	3,185	149,894	9	6	9	6	ditto.		
(9.) Holyhead	Nil. No record in Parl. Paper.	Nil.	16	6	32	15	Packet station.		
TOTAL Tonnage of Harbours of Refuge	5,112	277,291							
(10.) Thames — Ships	41,730	6,419,713	22	14	67	33	Open estuary.		
Steamers	5,860	1,625,323							
(11.) Liverpool — Ships	23,608	4,438,327	20	6	30	9	ditto.		
Steamers	5,771	2,055,201							

No. 1.—While within 30 nautic miles of the Tyne there were, in 1852, 125 wrecks, of which 70 were total, within the same distance of the Thames, including those at the harbours of refuge at Harwich and Dover, and the Goodwin Sands, there were only 70 wrecks, of which 35 were total. While the Goodwin Sands had 19 wrecks, of which 9 were total, during the whole year, the Tyne had 36 wrecks, of which 28 were total, on its seaboard in one gale during three days. While within 70 miles of the Tyne, taking it as a centre, there are a fourth of the total wrecks of the kingdom, and one-fifth of its tonnage, no Parliamentary support has been extended to remedy these national disasters; yet from 20,000 *l.* to 60,000 *l.* are annually voted to each of the several harbours of refuge, which unitedly do not possess much more than one-fourteenth of the tonnage of the Tyne. To prove the Tyne's capability for heavy tonnage, the Sardinian screw ship-of-war, the "Carlo Alberto," of 2,500 tons, has been lying afloat in the harbour for several months; no port on the north-east coast but the Tyne would be able to keep her afloat. The Tyne alone possesses also steam-coal, where vessels of war can take on board their supplies.

No. 5.—Harwich has had Parliamentary votes to the amount of 110,000 *l.* The sum voted last year was 20,000 *l.* (Parliamentary paper, 6th of April 1853, No. 304).

No. 6.—Dover has already received 176,000 *l.* of public money. The estimated cost of the works are 245,000 *l.* Last year 34,000 *l.* were voted.

No. 7.—Portland has had from Parliament 195,000 *l.* The estimated cost of the works are 588,959 *l.* Last year there were voted 30,000 *l.*

No. 8.—The Channel Islands have already received Parliamentary aid to the amount of 467,000 *l.* for Alderney and Jersey. The estimated cost of the works are 1,300,000 *l.*, without any aid whatever from themselves. Last year there were voted 60,000 *l.*

No. 9.—Holyhead had voted to it, in 1851, a grant of 61,681 *l.*

3 August 1857. *Jos. Cowen.*

Appendix, No. 9.

Appendix, No. 9.

PADSTOW HARBOUR.

To the Right Honourable the Lords Commissioners of the Admiralty.

The Memorial of the Magistrates, Merchants, Shipowners, Traders, and other Inhabitants of Wadebridge (within the Port of Padstow), agreed to at a public Meeting, the Rev. William Molesworth, one of the Magistrates of the County of Cornwall, presiding;

Showeth,

That the northern coast of Cornwall is particularly dangerous, in consequence of its exposure to the Atlantic Ocean, and that Padstow is the only safe harbour from St. Ives to Hartland Point, a distance of more than 22 leagues, along a rocky and perilous coast. That although the harbour, when gained, is capable of affording security to vessels of large tonnage, its approach is both difficult and dangerous, particularly in the winter season, with gales of wind from north-north-west, to west-north-west, owing to the accumulation of a bar of sand near the entrance, called the Doombar, on which many vessels with their cargoes have been annually lost; one called the "William Pitt," so lately as the 20th of January last, when all on board, except one individual, perished.

That it appears, from the evidence given before Mr. Gurney before a Committee on Shipwrecks, appointed by the House of Commons in 1843, that not less than 200 vessels have been wrecked within 40 miles of the coast, in the immediate neighbourhood of Padstow, between Trevose Head and Lundy Island, by which 426 lives were lost, and property destroyed to the amount of 296,000 *l.*, a large proportion of which might probably have been saved had there been a safe and accessible harbour of refuge.

That, in the opinion of your memorialists, the erection of a breakwater near the entrance of the harbour would make Padstow perfectly safe and easily accessible; and, from the report of a civil engineer who has examined the spot, they learn that such a breakwater might be erected for 16,100 *l.*, the effect of which would be the removal of a large part of the dangerous bar at present so disastrous to vessels in distress.

That your memorialists are informed that no less than 40,000 vessels annually pass this harbour, the whole of which are subject to great risk in sailing along the line of coast to which they have ventured to call the attention of your Lordships, in consequence of the absence of a port of refuge.

Your memorialists therefore pray, that your Lordships will take the facts of the case into your serious consideration, and adopt such measures for the safety of the commerce now carried on along this coast as may prevent the recurrence of the wrecks that are at present so frequent and distressing.

And your memorialists, as in duty bound, will ever pray.

(signed) *Wm. Molesworth*,
Chairman.

6 February 1845.

The best means of improving Padstow Harbour, or, in other words, the best place for a breakwater, is a question of very great difficulty; but, whenever the Legislature shall be convinced of the necessity of gradually improving the ports of this country, there is no place on its western coast, and few in its entire circuit, which will have a stronger claim for assistance.

In reply, the memorialists might be told that, if by petition and explanation of the peculiar situation of Padstow, they can induce Parliament to furnish the means, their Lordships will gladly undertake the requisite investigation, and the most prudent application of such funds as may be placed at their disposal.

They may be invited to transmit to their Lordships the plans and specifications and estimated expense of the engineer to whom they allude; and they might be reminded of the extreme difficulty of the question as to placing the breakwater, and of the probability that, if it should be improperly placed, the harbour would be for ever ruined.

22 February 1845. (signed) *F. Beaufort.*

Appendix No. 9.

REPORT of Messrs. *Rennie* as to the Harbour and proposed Breakwater at *Padstow.*

Sir, London, 22 August 1836.

AGREEABLY to your letter of 12th instant, requesting us to report "the result of our personal inspection of the harbour of Padstow, and the proposed line of railway, stating specifically the present state of the harbour, the anticipated effect of the breakwater, the cause of the accumulation of sand, the probable force of the breakwater, and the nature of the traffic and produce that may be expected on the railway, and all such other information as we may deem important,"—

We proceeded to Callington on the 30th ultimo, and, in order to economise our time as much as possible, we commenced the examination of the line of railway from that place to Padstow, reserving the remaining part of the line, between Callington and Plymouth, to be examined on our return.

For the same reason, we also deemed it proper to pay a visit to Boss Castle, for the purpose of examining the general appearance of that part of the coast of Cornwall, and for obtaining such local information as appeared necessary; thence we returned by the Delabole Slate Quarries, and, after a minute examination of these extensive works, proceeded along the line towards its termination at Rock Ferry, opposite Padstow.

At this place our time was occupied in examining the harbour, together with its sand-banks and adjacent coasts, and obtaining information relative to the state of the soundings, the set of the tides, and the mode of navigating vessels in and out of port under different circumstances. Thence we proceeded to Wadebridge, on the river Camel, and examined the railway from that place by Bodmin to Winford, a distance of 12 miles. We then returned to Callington, and examined, in the first instance, a valley which descends from that place to Cotele, on the river Tamar; and afterwards we followed the high-road from Callington to Saltash, which completed the examination of the remaining part of the line.

The harbour of Padstow is situated on the north-west coast of Cornwall, about midway between Hartland Point on the N.N.E., and St. Ives' Head on the S.S.W., its distance from Milford Haven, on the opposite coast, is about 80 miles, in a due northerly direction, and from Lundy Island about 40 miles. Its situation is further designated by the promontories of the Trevose Head and Pentire Point, but the actual mouth of the harbour is comprised between Pentire and Stepper Points.

The coast adjoining, as well as the whole north-west coasts of Cornwall and Devonshire, from the Land's End to Hartland Point, are bounded by high rocks and bold headlands, composed of schist and clay slate, and occasionally broken by deep inlets and small bays; but (with the exception of Padstow) from Bridgwater to the Land's End there is scarcely a port into which vessels of any burthen can run for safety. Bude, Ilfracombe, Clovelly, Portreath, St. Ives, are all dangerous, and capable of accommodating small vessels only. The principal places of refuge are Kingsroads, Lundy Island, Padstow, and Penwith. The winds most favourable for going up the Bristol Channel are S.W. and N.W., and for coming down S.E. and N.E.; and the most unfavourable, N.N.E. up, and N.N.W. down, particularly when blowing hard. When vessels cannot lie in safety under Lundy Island, in north or N.W. winds, they generally return to Kingsroads, or endeavour to run down the Channel to Penwith, according to circumstances, but in most cases they avoid the lee or north-west coast of Cornwall.

It sometimes happens, however, that they are caught by a contrary wind when off Padstow; in which case, they have no alternative but to run for that harbour, and this they do under circumstances of considerable risk, unless acquainted with its peculiarities; once in, they are perfectly safe.

This harbour is formed by an inlet or estuary of considerable extent and by the waters of the river Camel, which come from the interior of the country in a circuitous direction, but in a N.W. by W. course to a junction with the tide for about three miles, and nearly due north towards the sea for the same distance. Its appearance resembles a large lake or estuary of nearly 4,000 acres in area, but at low water it is about four-fifths dry. The land on both sides, with the exception of Hill Bay, and on the east side opposite Padstow, consists of lofty rocks of schist and clay slate, occasionally penetrated by trappe rock, particularly at Trebetherick Point, near the proposed breakwater, where it crops out to a considerable extent.

From a partial examination of the adjoining coast, the bays are found to be filled with sand, which is brought in by the violence of the waves and lodges in the tranquil places, such as bays and inlets, which it tends to fill up, and render impracticable as harbours of refuge.

This is the case with the bays of St. Ives, Bude, Bideford, and other places, and in a very great degree with the harbour of Padstow, which, but for the force of the breakwater, would be entirely choked up. The sand is found, by inspection and by analysis, to consist for the most part of calcareous matter, or sea shells ground down by the violent action of the waves, and varying in its proportion of from 40 to 70 per cent. of calcareous matter, with a small portion of magnesian earth, and the remaining part of slate and feldspar, according to the nature of the coast whereon it is deposited.

By Mr. Rennie's analysis, 100 grains of sand in muriatic acid yielded 65 grains of calcareous matter, 5 magnesia, and 30 slate and feldspar.

It therefore forms a very valuable article for manure, and is carried into the interior of the country for that purpose for a very considerable distance.

Appendix, No. 9.

As before stated, the accumulation of sand in the interior of the harbour occupies about four-fifths of its extent at low water, there being only one-fifth part for the backwater to keep open the harbour; but the principal bank, or one that most affects the harbour, is the Doom or Doombar Bank, which projects across the harbour from Trebetherick Point for three quarters of a mile from the eastern shore towards the Stepper Point on the N. W. shore, to nearly three quarters of a mile distance, and its width in some places is half a mile. Between the outer edge of the bank and low water is the navigable channel, which varies from 400 to 600 feet in breadth; there are also several other banks, one near Mud Cove, and the other between St. Saviour's and Gun Points, and some very extensive banks in the upper part of the estuary: the action of the wind over the banks at low water has raised several lofty sand hills on the eastern shore opposite Padstow.

The town pier of Padstow is situated about two miles from Stepper Point, and, from its lying under the projecting headland of Gun Point and St. Saviour's, is in a measure protected from the violent action of the winds and waves, and also by the Doombar Sand, which acts as a breakwater to the interior of the harbour. It is very difficult to give a correct opinion of the causes which have led to the formation of the Doombar, or indeed of any of the banks in the harbour; the presumption is, that the land which juts out as far as Penlive Point intercepts a certain portion of the current tide in its passage up the Bristol Channel from the westward, and causes it to re-act and revolve round the bay; where, striking the Stepper Point, it is deflected towards Gun Point (in the interior of the harbour), which causes it to diverge towards Padstow, and thus, by a succession of deflections, assisted by the counter-current of the backwater, its power is exhausted, and the sand, held in suspension, is deposited in the eddies and tranquil places. The harbour of Padstow may, therefore, be considered to be in a state of equilibrium between the fresh and the salt waters. From the same cause the low-water channel is found to be wherever the current is deflected, and to vary in depth accordingly; at present it is from three to four fathoms. The velocity also varies from one to three knots per hour. The entrance of the channel is indicated by buoys near the Stepper Point, for the purpose of assisting vessels from buoy to buoy when entering the harbour. The tides rise about 27 to 28 feet in springs, and feet in neaps.

Tides in St. George's Channel, according to M. Dessiou:—

Scilly Islands	4 hours	43 min.	high water.
Land's End	4 „	30 „	„
St. Ives' Bay	4 „	30 „	„
Padstow	5 „	0 „	„
Lundy Island	5 „	15 „	„
Barnstaple	5 „	30 „	„
Ilfracombe	5 „	30 „	„
Milford Haven	5 „	30 „	„
St. David's Head	6 „	0 „	„
Fishguard	6 „	30 „	„
Cardigan Bay	7 „	15 „	„

The tide comes from the south-west, and divides itself into three streams at the south-west points of Ireland and England; of which streams, two meet again at the north-east part of Ireland; they then strike the opposite shores of the Bristol Channel, whence they converge and rise to 50 and 60 feet at Chepstow.

According to Lieutenant Denham's survey of the tides in the Bristol Channel:

	High Water.		Height.
Lundy Island	5 hours.	15 min.	27 Feet.
Hartland	5 „	20 „	26 „
Appledore	5 „	30 „	—
Barnstaple Reach	6 „	0 „	—
Bideford Bank	6 „	0 „	—
Ilfracombe	5 „	45 „	—
Fanland	6 „	10 „	33 „
Minehead	6 „	30 „	38 „
Sully	6 „	45 „	31 „
King's Road	6 „	45 „	46 „
Bristol	7 „	0 „	40 „
Chepstow	7 „	30 „	70 „

From Hartland Point to King's Road is 90 miles. The tide travels, or rather pushes the upper waters, this distance in 1½ hours. The flood current in the Bristol Channel runs two hours after high water.

The winds most favourable for the entrance of the harbour are from N. E. to N. W., and the most unfavourable winds blow from the opposite direction. The best winds are considered to be the north-east, and the worst winds are the north-west; but all these points can only be determined by a more accurate survey.

Vessels attempting to make the harbour of Padstow generally endeavour to hug the land at Stepper Point, and make for the outer or Hope Buoy, and this they are generally enabled to do if the winds be moderate, and the tide favourable; but, if the tide should be ebbing,

and

and the wind in the west or north-west, the harbour is then very dangerous of access, inasmuch as, directly vessels come under the shelter of Stepper Point, the wind ceases, the sails are taken aback, the vessels lose way, and are carried by the current to the eastward, either upon the Ketch Sand or into Hell Bay, where they are infallibly lost, unless rescued by means of hawsers carried from the capstans. Appendix, No. 9.

This being the state of the case, or nearly so, it becomes a question how far a breakwater placed in the position proposed, viz., at Trebetherick Point, or somewhere thereabouts, in the direction of the Doombar Sand, would be beneficial. There can hardly be a doubt that it would have a tendency to wash away the greater part of the tail of the Doombar Bank, in consequence of the increased velocity with which the tide would flow in and out of the harbour; but whether it would have the effect of entirely diminishing the evils now complained of, is a question which requires further consideration.

(signed) *George Rennie.*

Appendix, No. 10.

TEES' HARBOUR OF REFUGE.

Appendix, No. 10.

Mr. Calver's Report.

H. M. Surveying Vessel, "Seaflower," West Hartlepool,
Sir, 31 May 1855.

Mr. Rendel's Report of the 4th of April last, upon a proposed harbour of refuge at the mouth of the Tees, and their Lordships' order to me to make such observations thereon as might appear to me to be necessary for their Lordships' information and guidance, were forwarded to Sunderland during my absence at Portsmouth, and since then a protracted passage to the north of England, a visit to London to give evidence upon the Sunderland Dock Bill, and the arrangements consequent upon a change of vessel, have prevented my carrying out their Lordships' instructions earlier.

Mr. Rendel has so fully described the Tees' Bay, and the estuary and outlet of the Tees, that I need not here dwell upon them, but will limit myself to a few brief observations upon the existing necessity for a refuge harbour at the site selected, and upon the important points of Mr. Rendel's recommendation.

The mouth of the Tees is situated at the head of a bight formed between the coasts of Durham and Yorkshire, which, from time immemorial, has had a painful celebrity for the number of wrecks occurring within it, for vessels embayed in easterly gales, and unable to clear the land on either tack, have often perished, with their crews, upon the extensive sands bounding the outlet of the Tees on either side, and frequently when attempting to enter it for shelter.

Though there is generally a depth of eight feet on the bar of the Tees, at low-water springs, which is more than any other bar harbour on the eastern coast, and double the available depth at the same time of tide into any of the ports in its immediate vicinity, yet the position of the bar is constantly changing, and as the direction of the fairway channel over it is mostly across the run of the heaviest sea when the entrance is required for shelter, entry under such circumstances is justly considered dangerous, and is seldom attempted except as a last resource; hence it follows, that if means can be devised for permanently fixing the position of Tees' Bar, and increasing the depth over it, it would be a great boon to the coasting trade in the saving of life and property.

Mr. Rendel quotes various documents, showing the state of Tees' Bar from time to time, the latest being the Admiralty Survey of 1853; it appears from these and other evidence, that for a long period subsequent to 1762 the sailing course into the Tees was west by south; in 1789 it had altered to S. W. ½ W., and in 1845 to S. S. W. ¾ W., and in 1832 and 1853 it was S. S. W. ¼ W., thus showing that the channel into the Tees has been gradually approaching the northern shore, and that the sailing course through is now five points more southerly than it was in 1762. If it be remembered that the embaying wind on this coast is east by north, it will be seen that the Tees was formerly far better adapted for refuge purposes than it is at present, for a perfect refuge harbour is one which a vessel is able to enter before the heaviest sea without touching sail or brace. It is, therefore, evident that the first step in improvement should be to give the outlet of the Tees a more easterly direction.

Mr. Rendel recognises this necessity, and, among the works projected by him for the purpose, is a north pier a mile long, running in a curved form from Seaton Shook to within a quarter of a mile of the bar; besides which, he has designed a south pier of more than

Appendix, No. 10.

double the above length, and also a southern interior work, leaving between them an entrance 1,800 feet wide, facing north-east. I am of opinion that the projection of the northern pier is correct in principle, and that its execution would be followed by the most beneficial results. At present a considerable portion of the backwater from the Tees passes over and within the North Gace, and the benefit of its scour is consequently lost to the bar; but were this dispersion prevented by an artificial work, as proposed, the depth over the bar would be immediately increased and maintained.

Mr. Rendel's entrance faces north-east, but (assuming that there is not the engineering difficulty of a hard subtratum to prevent it) it should open three points more easterly, or in a line with the embaying wind, especially as it could be done consistently with a due regard to the junction of the tide streams of sea and river.

I am decidedly of opinion that it would be unwise to execute any works upon the south side of the mouth of the Tees, at least for the present. The formation of the north pier, as I have already remarked, would, without fail, produce two results; it would permanently fix the position of the bar, and increase the depth over it from eight feet at low-water springs, as at present, to probably 11 or 12 feet, and thus render it available for refuge in on shore gales shortly after half flood.

Other effects would also follow, and a very likely one would be the formation of a straight sand edge on the south side of the channel, which would answer all the useful purposes of a south pier.

Mr. Rendel appears to have projected the south pier partly with reference to the scour, but principally with a view of quieting the estuary in easterly gales. I am not aware, from experience, that there is ever in the estuary of the Tees such an in-run as would warrant so large an outlay for its prevention; there is, in fact, no weight of sea to a vessel of moderate burthen after the fifth buoy hole has been entered, and it must not be lost sight of that in the Tees, as in other estuaries similarly constituted, the heavier the sea upon the sands in front, the quieter it is in the space within.

Another point connected with the South Pier is, that as three-fourths of the bran-sand (over which it would run) is above high-water springs, a pier of half the length might have been projected to answer the same purposes.

Mr. Rendel has made a precautionary remark in his Report, to which I would respectfully call their Lordships' attention: he says (page 14) "in such a situation as this it is the most difficult problem in engineering so to design piers suitable to giving shelter, as not at the same time to give rise to new formations of sand at their heads, or liability to sanding or silting up in the anchorage within." And I would urge the special applicability of this caution to the present case, for it is one where the safest course is to limit the works at first to what is obviously necessary, and not to enter upon any for which the necessity is less certain, and the effects of which cannot be so readily predicted.

The second point in the order of importance is the interior accommodation or berthage for vessels taking shelter.

The Tees is indifferently off in this respect, for, as mentioned by Mr. Rendel, out of an estuary embracing a space of 7,927 acres, covered at high water, only 1,103 acres are covered at low water.

Though the extent of this space can never be greatly increased by artificial means, yet its depth may be much improved, and if the traming operations, now being promoted by the Tees Commissioners, are judiciously carried out, I see no reason why the entire channel from the fifth buoy hole to Middlesbrough should not be rendered available for berthage by possessing a sufficient depth for vessels to be wholly or partially waterborne in it at low water. The convenience of a channel, thus formed, for such a purpose, would greatly depend upon efficient harbour regulations and a proper system of berthage in the order of arrival.

In conclusion, I would beg to record my opinion that were a north pier formed, at the mouth of the Tees, to the extent indicated in the Parliamentary Plan of the Tees' Commissioners of 1852, and now recommended by Mr. Rendel, it would be followed by the most beneficial results; it would give certainty to the position of and depth over the bar of an important river possessing at present a large trade, which promises to become greatly increased in future years; it would render the entrance of the Tees available for refuge purposes, and thus confer a great boon upon the whole coasting trade, and it would render unnecessary a large outlay at a neighbouring site to secure a similar advantage, and where there are also physical drawbacks which do not exist in the present case.

I beg to return herewith Mr. Rendel's Report.

I have, &c.
Edward K. Calver,
Admiralty Surveyor.

To the *Tees'* Conservancy Commissioners.

Gentlemen,

The Tees may be very briefly described as rising in Cumberland, 60 miles from the sea, pursuing a circuitous course of 100 miles, draining about 700 square miles of country, and having a tidal development of 27 miles in length from the Fairway Buoy to Highford above Worsal. The estuary embraces an area, covered at high water, of 8,000 acres; spring-tides rise at the bar 16 feet 6 inches; at Middlesbrough, 14 feet 3 inches; Stockton, 12 feet; Yarm, 7 feet 5 inches, and at Worsal, 25 miles from the sea, 6 feet 6 inches.

The

The average rate of spring-tides immediately below the light ship is four miles per hour, and on the bar the rate is about three miles, and the depth varies from 6 to 12 feet, the average being about 8 or 9 feet.

The quantity of water flowing over the bar, during a 16-feet tide, is upwards of 100,000,000 tons, or 400,000,000 tons every 24 hours, which, with a rate of three miles per hour, is equal to 1,145,500 horse-power, exclusive of land-water, which, during the floods of winter, is sometimes equal to an additional 201,460 horse-power.

No one will deny that such an immense power, if judiciously regulated and applied, is capable of producing almost unlimited results. That the greater part of this immense body of water passes in and out of the Tees to no useful purpose, so far as regards the bar, will be admitted by all acquainted with the river. In order, therefore, to bring this hitherto wasted power into useful operation, I propose to construct a pier from Seaton Snook, across the North Gore, in a circular direction, as shown on the accompanying Chart, for the purpose of arresting the water that passes to and from the Tees over the North Gore, and of directing the whole of the flood and ebb tides in one direction, which will have the effect of maintaining a well-defined channel more to the southward than the present channel generally is, and consequently easier of access in an embaying wind. The permanency of direction, and the increase of power obtained by the pier, will give an additional depth on the bar of six or eight feet over the maximum, or from 18 to 20 feet at low water spring-tides. For the purpose of assisting the direction of the tide outwards, and to get clear of the scarps at the 7th and 8th buoys, and also to obtain a more yielding bottom for the enlargement of the anchorage within, by scourage, I propose to construct an inner work or guiding wall from a point near "Jack in the Box," as shown on the plan, to the 5th Buoy Pool, by which I propose to conduct the channel by an uniform and gentle curve, to the westward of the 9th Buoy Rocks, and into the 5th Buoy Pool, in such direction as shall scour it out on the side on which it is capable of enlargement without artificial means. The form of the channel and the nature of the bottom leave no doubt on my mind that the depth at low water will be from 12 feet at the upper end, to 18 or 20 feet at the commencement of the lower pool, in which the depth would remain, as at present, from three to six fathoms, but the area would be greatly extended; an anchorage would be obtained of three miles in length, with a depth, at low-water springs, of two to six fathoms. Another advantage obtained by the avoidance of the rocks would be a depression of the low-water surface, a more speedy transmission of the tidal wave, and a greater range of tide in the upper reaches of the river.

The situation of these works, as well as the nature of the ground, at once suggest the mode of construction that ought to be adopted; and no better material can be obtained with which to construct the works than slag from the blast-furnaces; my experience warrants me in stating that it will answer the purpose well; being hard and rough on the surface it is consequently not easily moved, and it can be obtained in blocks of any size (five-ton blocks are now being made at some of the furnaces). The quantity also is ample, there being 29 furnaces now in blast on the banks of the river, and other four in course of construction, which will yield about 9,500 tons per week, sufficient to construct the pier in 11 months.

The cost of constructing the north pier of slag, paving its surface, and forming a platform and parapet of timber on piles, will be 70,000 *l.*

The inner works or guiding-wall, as laid down upon the plan, will cost 11,000 *l.*, that is, to make a third tide-wall sufficiently marked out by beacons, from "Jack-in-the-Box," to the 5th buoy.

I am not of opinion that a south pier should be constructed at present, but if, after the north pier has been constructed, it should then be considered necessary, I would construct it as shown upon the plan, if done in a similar manner to the north pier; its cost would be about 80,000 *l.*

In conclusion, I would beg to add, that these works will render the entrance to the Tees such as that it may be safely taken at almost any state of tide by the mercantile shipping trading upon the coast; and so long as the level of the country remains unchanged, or the Tees runs to the sea, and the sea continues to rise and fall, the improvement will be permanent, for the existing currents are not to be destroyed, or their power diminished, but directed to do work in the proper place, and to the best advantage, differing widely in these respects from harbours formed upon a plain coast by projecting works from the shore, and destroying the original currents which maintained the depth, their ultimate result being the filling up of the sheltered ground.

I have, &c.
John Fowler.

Stockton, 17 July 1857.

Appendix, No. 11.

Appendix, No. 11.

REPORT to the Trustees of the Harbours of *Peterhead*, by *D.* and *T. Stevenson*, Civil Engineers.

Edinburgh, August 1857.

With reference to our Report of 1847, on the Improvement of the Harbours of Peterhead, and the inquiry on Refuge Harbours at present being instituted by Parliament, we have been requested by the trustees to state if our views, as to the extension of the harbours, have undergone any change; and we have now to report, for their information, that we entirely adhere to the opinions expressed in the said Report, as to the suitableness of Peterhead for the establishment of a harbour of refuge.

We have had pretty large experience of the east coast of England and Scotland, having been professionally consulted on, or having executed works at, about 40 harbours between Hartlepool and the Orkney Islands; and we have seen no reason to change our opinion that Peterhead is the best site for a refuge harbour, between the Firths of Forth and Cromarty, for the shipping frequenting the eastern shores of the country.

We must refer to our Report for a detailed statement of the grounds on which this opinion is based; and we can only now state, generally, in a nautical point of view, that Peterhead commands a stretch of dangerous coast of 250 miles, extending from the Firth of Forth to the Firth of Cromarty, on which coast there is no harbour that can be regarded as a harbour of refuge, while vessels leaving Peterhead have a most favourable loose both for the north and south, and many vessels being up for shelter at present in Peterhead Bay, even in its unprotected state. In an engineering point of view, the situation is also peculiarly well adapted for the construction of the harbour works. On this point we can speak with confidence, the whole of the recent works, constructed at Peterhead since 1846, at a cost of about 60,000 *l.*, having been executed under our directions. The granite obtained in the vicinity is the best material that can be employed for the construction of breakwaters. The bay is well indented, the locality entirely free from sand, and the water deep.

In our Report of 1847, two schemes for a harbour of refuge are proposed, one estimated at 227,905 *l.*, and enclosing an area of 12 acres, and the other, estimated at 450,912 *l.*, and enclosing an area of about 40 acres; the entrances of both harbours having a depth of seven fathoms at low water of spring tides; to these areas the present harbours, amounting to about 18 acres, must be added in computing the total amount of harbour accommodation which would be afforded were either of the schemes to be carried out.

With reference to those estimates, made in 1847, we have to explain, that the main breakwaters, as then proposed, were designed as regular piers, having a parapet and roadway; but, if it were resolved to restrict the outer harbour to a sheltering basin protected by breakwaters without parapets, such as we have recently designed for Wick Bay, the expense of the work would be materially decreased. In absence of working drawings or minute calculations, we should estimate the smaller design at about 140,000 *l.*, and the larger at 250,000 *l.*, if constructed according to that plan.

The trustees are aware of the great advantage that has followed the deepening of the north harbour and the junction of the north and south harbours, so as to secure a double entrance, both of which improvements have been carried out since 1847. For an expenditure, not exceeding 12,000 *l.*, the south harbour might also be deepened to six feet at low water, and then the harbours of Peterhead, with their access both to north and south, would, with the addition of a refuge harbour of even moderate extent in the south bay, afford every requisite facility and protection to shipping.

If there is any other point on which the trustees would desire to have our views, we shall be ready to give it our immediate attention.

(signed) *D. & T. Stevenson.*

ANALYSIS OF INDEX.

ALPHABETICAL and CLASSIFIED LIST of the PRINCIPAL HEADINGS in the following INDEX, with the Paging at which the same will be respectively found.

PAGE

BALTIC TRADE - - - - - - 284
Carlingford - - - - - - - 286
Ardglass Harbour - - - - 283
Clogher Head - - - - - 287
Coaling Stations - - - - - - 287
Colliers - - - - - - - 287
England, East and North-east Coasts of 292
Hartlepool - - - - - - 295
Manning of Colliers, &c. - - - 302
Sunderland - - - - - 310
Trade or Traffic - - - - 313
Tyne, The - - - - - 314
Wrecks and Casualties - - - 322
Collisions - - - - - - - 287
Wrecks and Casualties - - - 322
Convict Labour - - - - - 288
Costs - - - - - - - - 290
Carlingford - - - - - 286
Convict Labour - - - - 288
Dover Harbour - - - - 291
Falmouth Harbour - - - - 293
Free Harbours - - - - 294
Hartlepool, 4 - - - - - - 296
Holyhead - - - - - - 298
Insurance - - - - - 299
Light Dues - - - - - 301
Portland - - - - - 304
St. Ives - - - - - - 307
Stoge System of Construction - - 308
Sunderland - - - - - 310
Tolls - - - - - - 312
Trading Harbours - - - - 314
Tyne, The (or Tynemouth), 5. 6 - 314
Waterford Harbour - - - 319
Wexford Harbour - - - - 320
Wick - - - - - - - 321
Dover Harbour - - - - - 291
England, East and North-east Coasts of - 292
Baltic Trade - - - - - 284
Colliers - - - - - - 287
Hartlepool - - - - - 295
Insurance - - - - - 299

England, &c.—continued. PAGE
Manning of Colliers, &c. - - - 302
Redcar - - - - - - - 305
Sunderland - - - - - 310
Tees Bay - - - - - - 311
Tees Mouth - - - - - 311
Trade or Traffic - - - - 313
Tyne, The (or Tynemouth) - - - 314
Wind (North-east Coast) - - - 322
Falmouth Harbour - - - - - 293

HARTLEPOOL:
1. *Generally as to the Advantages of Hartlepool as the Site for a Harbour of Refuge* - - 295
2. *Its Advantage as a Naval Station* - - - - - 296
3. *Considerable Trade of Hartlepool* - - - - - - 296
4. *Means of defraying the Cost; Tolls now leviable* - - 296
5. *Plan of the late Mr. Rendel* - 296
6. *Plans of Captain Vetch and Mr. Calver* - - - 297
7. *Plan of Mr. Dunning* - - 297
8. *Objections to Hartlepool as the Site of a Refuge Harbour; greater Advantage of a Harbour at the Tyne* - - 298
Commission of Inquiry - - - 288
Cost - - - - - - - 290
England, East and North-east Coasts of 292
Redcar - - - - - - 305
Sunderland - - - - - 310
Tees Bay - - - - - 311
Tees Mouth - - - - - 311
Tyne, The (or Tynemouth), 3. 8 - 314
Wrecks and Casualties - - - 322
Holyhead Harbour - - - - - 298
Liverpool - - - - - 302
Insurance - - - - - - 299
Ireland - - - - - - - 300
Antrim Coast - - - - - 283
Ardglass Harbour - - - - 283
Bann River - - - - - 284
Carlingford - - - - - 286

Ireland—continued. PAGE

Skerries, The - 308
Tuskar - 314
Waterford Harbour - 319
Wexford Harbour - 320

Light Dues - 301
Loss of Life - 302
Loss of Property - 302
Man, Isle of - 302
Manning of Colliers - 302
Padstow - 303
Peterhead - 304
Portland - 304
Convict Labour - 288

Saint Ives - 307
Scotland, Coasts of - 307
Aberdeen Harbour - 283
Cromarty Firth - 291
Dunbar - 292
Elie - 292
Forth, Firth of - 294
Orkney and Shetland Islands - 303
Pentland Firth - 304
Scrabster - 307
Wick - 321

Skerries, The - 308
Bengore Headland - 284
Clogher Head - 287

Stage System of Construction - 308
Holyhead Harbour - 298
Portland - 304
Sunderland - 310
Tees Bay - 311
Hartlepool - 295
Tees Mouth - 311

Tees Mouth - 311
Hartlepool - 295

Tidal Harbours - 312
Trading Harbours - 314
Tyne, The (or Tynemouth) - 314
Waterford Harbour - 319

Tolls:
1. *Passing Tolls* - 312
2. *Refuge Tolls* - 312
3. *Composition Tolls* - 313

Hartlepool, 4 - 296
Insurance - 299
Light Dues - 301
Tyne, The (or Tynemouth), 6 - 314
Wick, 7 - 321

Trade or Traffic - 313
Baltic Trade - 284
Hartlepool, 3 - 295
Sunderland - 310
Tyne, The (or Tynemouth) 1 - 314
Trading Harbours - 314
Tidal Harbours - 312

PAGE

Tyne, The (or Tynemouth):
1. *Large Trade of the Tyne* - 314
2. *Numerous Wrecks off the Mouth of the River* - 314
3. *Eligibility of the Mouth of the Tyne as the Site for a Harbour of Refuge* - 314
4. *Works contemplated; their Advantage; Progress already made* - 315
5. *Cost of the Works* - 315
6. *Means of defraying the Cost* - 315
7. *Tyne Improvement Commission* 315
8. *Question as to the Eligibility of the Site, or of the proposed Works* - 315

Commission of Inquiry - 288
Cost - 290
England, East and North-east Coasts of - 292
Hartlepool, 1, 8 - 295
Tidal Harbours - 312

Waterford Harbour - 319
Wexford Harbour - 320

Wick:
1. *Generally in favour of a Harbour of Refuge at Wick* - 321
2. *Advantage of the Harbour as a Naval Station* - 321
3. *Facilities of Construction* - 321
4. *Recommended Construction on the Stage Principle* - 321
5. *Several Plans proposed* - 321
6. *Cost* - 321
7. *Means of defraying the Cost* - 322
8. *Extent of Refuge by Means of the proposed Harbour* - 322

Baltic Trade - 284
Caledonian Canal - 284
Pentland Firth - 304
Peterhead - 304
Pulteney Town Harbour - 305
Scrabster - 307

Wind (North-east Coasts) - 322

Wrecks and Casualties - 322
Carlingford - 286
Colliers - 287
Collisions - 287
Hartlepool, 1 - 295
Loss of Life - 302
Loss of Property - 302
Manning of Colliers, &c. - 302
St. Ives - 307
Tees Bay - 311
Tyne, The (or Tynemouth) 2 - 314
Waterford Harbour - 319
Wexford Harbour - 320
Wick, 8 - 322
Wind (North-east Coast) - 322

I N D E X.

[*N.B.*—In this Index the *Figures* following the Names of the Witnesses refer to the Questions in the Evidence; and those following *App. p.*, to the paging of the Appendix.]

A.

ABERDEEN HARBOUR. Advantage as regards accommodation for shipping consequent on the improvement of Aberdeen Harbour, *Vetch* 532–535. 877–899; *Calver* 1964——An outside harbour is not at all expedient, *Calver* 1965——Facilities for the coaling of large vessels at Aberdeen, *ib.* 2395, 2396.

Action of the Sea. General principles affecting the action of the sea upon breakwaters, *Coode* 1608, 1609. 1668–1673. 1683–1688. 1708–1715.

Aldborough Bay. Improvements in Aldborough Bay are rendered unnecessary by existing means of refuge in Hollesley Bay, Harwich Harbour, &c., *Calver* 2382–2389.

Alcock, Charles. (Analysis of his Evidence.)—Chairman of the Shipowners' Society at Sunderland, 3782–3784——For many years the necessity of a harbour of refuge on the north-east coast has been much discussed at Sunderland, 3785, 3786. 3799——There are two plans for a harbour of refuge at Sunderland, one by Mr. Meek, and the other by Mr. Murray, 3787, 3788——Particulars relative to the plan of Mr. Murray for a harbour at Hendon Bay, close to Sunderland; its advantages, 3789–3798. 3801–3803.

Practical objection to a harbour of refuge at Hartlepool, on account of the probability of its silting up, 3800——Expediency of inquiry by a properly constituted commission as to the proper site for the proposed harbour, 3804. 3817, 3818——Approval of vessels paying a toll for the use of a harbour of refuge, 3805–3808. 3825–3830——Objections to a system of passing tolls, 3806. 3820. 3825–3830——Doubt as to any material effect upon the rate of insurance if there were a harbour of refuge on the north-east coast, 3809–3815.

Statement relative to the trade of Sunderland; comparison with that of the Tyne and Tees, 3821, 3822. 3834–3841. 3849——Practice of masters on the east coast to incur danger in running for their own ports, rather than to make for any harbour of refuge, 3823, 3824——Belief as to the advantage of Sunderland over Hartlepool as the locality for a harbour, 3831–3833. 3841–3844——Numerous wrecks through vessels crowding into bar harbours, 3845–3848——Very large sum expended in the docks and harbour of Sunderland, 3850——Impression that frigates can now coal at Sunderland Docks, 3851–3853.

[Second Examination.]—Delivers in a return, showing the number of ships built at Sunderland, and in the United Kingdom and Colonies, and containing particulars of the trade of Sunderland as compared with other ports on the east coast, 4340–4341——Offers further evidence in support of a harbour of refuge at Sunderland, and explains the character of the ground to be inclosed in regard to anchorage, 4342–4352.

Antrim Coast. Many wrecks occur on the Antrim coast, &c., which might be prevented if there were a harbour of refuge there, *Hoskyn* 3004–3006.

See also *Carlingford.* *Red Bay.*

Apprentices. Relief in some respects to the shipping interest by the doing away with apprentices; the system of apprenticeship had, however, its advantages, *Robinson* 3628–3630.

Arbroath Harbour. Arbroath Harbour is of local value only, *Calver* 1959–1961. 2230, 2231.

Ardglass Harbour. Advantage if Ardglass Harbour on the north-east coast of Ireland were improved, *Washington* 162–166——Inexpediency of expending 300,000 *l.* on a harbour of refuge at Ardglass, when one can be provided at Carlingford for 25,000

Report, 1857—*continued.*

Ardglass Harbour—continued.

Ramsay 3164-3168——Ardglass is a good position for a harbour of refuge, *Wherland* 3922——Opinion that Ardglass is not so eligible a site as Carlingford, *Bourne* 4061-4063.

B.

Baltic Trade. A large portion of the Baltic trade goes through Pentland Firth, and would use the proposed harbour at Wick, *Sulivan* 1022-1028. 1268, 1269——Extent of the Baltic trade with the principal ports on the east coast of England, *ib.* 1064, 1065——Objection to making vessels from the Thames, &c. to the Baltic pay a toll for a harbour at Hartlepool, *ib.* 1117 *et seq.* 1178-1181——Vessels coming from the Baltic, through Pentland Firth, might fairly be charged a toll for Wick Harbour, *ib.* 1121, 1122.

How far Hartlepool harbour might be available for vessels going from more southern ports to the Baltic, *Calver* 1949-1955.

Bann River. With respect to the north coast of Ireland, the erection of two piers at the mouth of the River Bann would be very useful for local purposes, *Vetch* 613-615.

Bar Harbours. See *Tidal Harbours.*

Beachy Head. Remarks as to a harbour having some years ago been recommended at Beachy Head, *Vetch* 835-841——There is not an adequate demand for a harbour of refuge at Beachy Head now that Dover Harbour is being constructed, *Sulivan* 1273, 1274.

Belfast Harbour. Belfast Harbour has been greatly improved by local means, and affords most valuable shelter, *Washington* 159.

Bengore Headland. Bengore Headland, near the Skerries, affords shelter from an east wind, but not from a north-east wind, *Hoskyn* 3019, 3020.

Blasting. There would be no physical difficulty in removing, by blasting, a half-tide rock at a considerable distance from land, *Coode* 1575-1582.

Bourne, William. (Analysis of his Evidence.)—Master mariner at Liverpool; has been in command in the foreign trade for fifteen years, 4028-4032——Evidence in favour of Carlingford Lough as a very desirable site for a harbour of refuge in the case of vessels homeward or outward bound from Liverpool, 4033-4036. 4061-4063. 4080-4084. 4102, 4103——Difficulty in getting into Dublin Bay in certain winds, 4034-4036——Waterford Harbour is not now available as a harbour of refuge, 4037, 4038——Objection to Milford Haven, on account of the difficulty of getting out of it, 4039-4043. 4104-4107——Similar objection to Holyhead Harbour, 4048-4051. 4089-4097.

A small toll levied on all ships passing a harbour of refuge would be better than a larger toll levied for the use of the harbour, 4052-4058. 4068-4072——Evidence in favour of Waterford as the best site on the coast of Ireland for a harbour of refuge, 4059, 4060——Less eligibility of Douglas, Isle of Man, than of the Irish coast for a harbour of refuge, 4064-4067—— Willingness of captains to pay a toll for a refuge during a gale, 4070-4072. 4082-4088. 4108-4110.——Reluctance of captains to enter harbours at all unless driven to do so, 4073-4080.

Ineligibility of Porthdinllaen, in Carnarvon Bay, as a site for a harbour of refuge, 4089-4098——Objection to a harbour within Tuskar, about Greenore, or Carnsore Point, 4111-4118——Usefulness of a harbour of refuge on the north-east coast of England, although vessels in a gale of wind might not in the first instance make for it, 4119-4121.

Bournemouth. Suggested construction of a fishing harbour at Bournemouth, to the south of Dunbar, to be carried out under the Fishery Board, *Sulivan* 1001. 1039-1042.

Bridlington Bay. A harbour of refuge in Bridlington Bay would be very useful; but it is not nearly so pressing as one in Tees Bay, *Washington* 116-120.

Bristol Channel. Doubt whether there is any place on the north side of the Bristol Channel available for a harbour of refuge, *Hosken* 2936, 2937.—*See* also *St. Ives.*

Buckhaven Harbour. Reference to the large contribution by owners of fishing boats at Buckhaven towards harbour accommodation, *Sulivan* 992-1000. 1309-1312——Faultiness of the original plan in the case of the harbour, *ib.* 1314-1318.

C.

Caledonian Canal. Slight use made of the canal by the Baltic trade, &c.; advantage hereon if there were a harbour of refuge at Wick, *Sulivan* 1021-1025. 1268, 1269.

Calver,

Report, 1857—*continued.*

Calver, Edward Killick, R.N. (Analysis of his Evidence.)—Admiralty surveyor for the east coast of England; has since 1836 been continuously upon the coast, 1835–1838——Is now employed in making a critical survey of the harbour of Holyhead, 1839–1841——Satisfactory progress being made with the Holyhead works, 1842. 1849–1853——The harbour will be an inestimable advantage to shipping, 1843——The system of construction by means of a fixed stage is peculiarly advantageous, 1844–1848. 1861——The entire extension from the original plan has doubled the value of the harbour, 1854–1858——The stage plan should be adopted wherever practicable, 1859–1861.

Nature of the masonry on the top of the rubble work at Holyhead, 1862–1865——Necessity of masonry to secure the breakwater, 1866–1868——Much less expense and more rapid construction in building upon rubble work than from the bottom, 1869–1871——Natural refuge afforded by Yarmouth Roads, 1876, 1877——Obstacle to a harbour of refuge on the coasts of Norfolk and Suffolk, on account of the enormous mass of shifting sand, 1878–1880.

Evidence in favour of a harbour of refuge at the head of Tees Bay, 1881 *et seq.* 2042, 2043——Objection to Newbegin, near Blyth, as the site of a harbour of refuge, 1883–1887——Suggestions for the formation, at Hartlepool, of the proposed harbour so much required in Tees Bay; advantage of Hartlepool over any other locality on that coast, 1888, *et seq.* 2042, 2043. 2126. 2294——The works at Hartlepool should be a detached breakwater, leaving an ingress and egress north and south; advantage of this construction over a close harbour, 1893–1911——Facility for procuring near Hartlepool the necessary material for a breakwater, 1912–1917. 2067–2075.

Nature of the works at the mouth of the Tyne, with a view to concentrate the scour of the river; probable effect, 1920–1928. 2076–2078. 2281–2284. 2318–2327——The outlet of a river like the Tyne is by no means suitable for being formed into a harbour of refuge, 1928. 2318–2327. 2406——Except for local purposes, a harbour is not expedient at Sunderland, 1929–1931——Great saving of life and property if there were a harbour of refuge at Hartlepool, 1933–1942. 2079–2083——How far such harbour might be available for vessels going from more southern ports to the Baltic, 1949–1955——How far, in a south-easterly gale, a refuge at Hartlepool would be available or desirable, 1954. 2285, 2286. 2312–2317.

Excellent refuge afforded by the Firth of Forth, 1956. 2229——Also by the mouth of the Tay, 1957, 1958——Several trading harbours on the east coast of Scotland adverted to; inexpediency of a harbour of refuge along the coast, 1959–1968. 2230, 2231——Excellent harbour of refuge afforded by Cromarty Firth, 1969–1971——Reference to the Pulteney Town Harbour, Wick, as having silted up very much, 1973–1975. 1987. 2142–2152——Considerable fishing trade of Wick, 1976–1979.

Approval of the harbour proposed at Wick by the Fishery Society, by means of a breakwater from the southern coast; it would, however, be very apt to silt up, 1980–1988. 2004–2022——Disapproval of the plan of Captain Washington and Captain Vetch for breakwaters from both the north and south coasts at Wick; not only would the harbour silt up in course of time, but the rebound of the sea off the works would be very dangerous, 1989–2003. 2009–2023. 2142–2183.

To the northward of Wick, Pentland Firth and Cromarty Bay afford excellent refuge, 2024–2029——The Orkney and Shetland Islands abound with natural harbours of the finest description, 2070. 2189——Scrabster Harbour is very safe, but is very small, 2031–2034——The west coast of Scotland abounds with natural harbours, 2038, 2039.

Further reference to witness's survey of Holyhead Bay, 2044–2050——Extensive accommodation to be afforded at Holyhead; further means of refuge are not necessary, 2051–2063——As regards the cost of harbours of refuge, it would probably be the fairer plan to make each vessel pay a toll that uses it, 2084. 2193, 2194. 2304——Doubt as to a payment for the use of the harbour deterring vessels in danger from running for it, 2085. 2195, 2196. 2305——Impression that all the works sanctioned at Spurn Head are being carried out; object and value of these works, 2086–2095. 2101–2105——Witness was an advocate for the harbours at Portland and Dover, 2097——He also was in favour of a harbour of refuge at Seaford, and still considers it would be very useful, 2097, 2098. 2255–2259.

Absence of any appearance of injury to the breakwater at Holyhead, 2106–2111——Movement of the sand on the east coast further adverted to; its effect upon the Lowestoft and Yarmouth banks, 2112–2116——Nature of the bottom at Hartlepool Bay; it is clay, with a deposit of sand, 2117–2121——Grounds for objecting to Redcar as the site of a harbour of refuge, 2122–2125. 2310, 2311——Ineligibility of Peterhead as a site for a harbour of refuge, 2127–2139——As regards a harbour at Wick, witness considers it would be available only for local purposes, but that it would not otherwise be much used, 2137–2141. 2184–2191. 2328–2337. 2395–2401.

As regards the coaling and accommodation of Her Majesty's vessels in time of war, a harbour at Wick is not essential, 2197, 2198. 2395–2399——Availableness of Scrabster Road as a coaling station, &c., in time of war; it is preferable to a harbour at Wick, 2198–2212. 2224–2228——Probable risk in coaling inside Plymouth breakwater, 2213,

Report, 1857—*continued.*

Calver, Edward Killick, R.N. (Analysis of his Evidence)—*continued.*

2214——For purposes of refuge, Plymouth breakwater is very effective, 2215——Cromarty is a very good place for coaling, but as a naval station is much inferior to Wick, 2216-2223.

Further evidence relative to the plan of breakwater desirable at Hartlepool; objection to the plan of Mr. Rendel, 2232-2246. 2295-2299——Importance of accommodation for men-of-war in Hartlepool Harbour of Refuge, 2247-2254. 2309——Further statement as to the course pursued at Holyhead in regard to the foundation of the masonry on the rubble work, 2261-2276——The bottom at Hartlepool is a plain surface, without obstruction, 2277, 2278——Tendency of permanent or close harbours to silt up, 2279, 2280.

Great trade and numerous wrecks on the east coast adverted to as constituting a peculiarly strong claim for a harbour of refuge on that coast, 2287-2293——Propriety of due consideration being given to the claims of the several ports before Government advances a sum in aid of a harbour of refuge at any particular place, 2300-2303. 2306-2308——Impolicy of making harbours of refuge out of tidal harbours, as at the Tyne, &c., where there is an insufficient depth of water, 2318-2327. 2394-2406.

Amount of traffic, and loss of life and property, along the south coast adverted to as not constituting a claim at all equal to that of the east coast for a harbour of refuge, 2338-2341. 2370-2375——Character and extent of the coasting trade on the east coast, and nature of the casualties considered in connexion with the claim of that coast for a harbour of refuge, 2342-2369. 2402-2409.

Except for local purposes, an improvement of Newhaven Harbour is not desirable, 2376-2381——Improvements in Aldborough Bay are rendered unnecessary by existing means of refuge in Hollesley Bay, Harwich Harbour, &c., 2382-2389——Since 1838 Harwich Harbour has been available for refuge on a large scale, 2390-2393——Facilities for the coaling of large vessels at Aberdeen, 2395, 2396——Also in the natural harbours of the Orkneys, 2397, 2398——Dangerous use made by many vessels of Pentland Firth, instead of going to the northward of Orkney, 2400, 2401.

Calver, Mr. Report by Mr. Calver, dated 6th December 1856, on the best site for a harbour of refuge on the east coast of England, *App. p.* 245-249.

Report by Mr. Calver on the Tees Harbour of Refuge, dated 31st May 1855, *App. p.* 277, 278.

Carlingford. Great benefit to be derived from a small outlay on Carlingford Bay, *Washington* 167-171. 182. 200-204——About 20,000 *l.* would be sufficient, *ib.* 182. 203——Advantage if the bar at the mouth of Carlingford Lough were dredged and broken up, *Vetch* 617-621——There are several losses on the coast about Carlingford Bay, *Fraser* 2419, 2420. 2601——Importance of a place of refuge in Carlingford Bay; this might be effected at a comparatively small expense, *ib.* 2421-2428. 2501. 2504-2511. 2554-2558. 2562-2566.

Evidence relative to Carlingford, and in favour of removing the bar; this might be done by dredging for about 30,000 *l.*, and would render available a most useful place of refuge, *Hoskyn* 2968-2987. 3010-3016. 3025-3035. 3056-3060. 3090-3094——New channel of entrance discovered by witness at Carlingford; suggestions for bringing it into use, *ib.* 2970-2979——A straight channel, eighteen feet in depth, might be formed for the sum mentioned, *ib.* 2977, 2978——Vessels which would be accommodated by a harbour at Carlingford, *ib.* 2979-2987. 3056-3060——The bar is covered with clay, *ib.* 3016——Additional lights necessary if a new channel be opened, *ib.* 3027-3032——Reference to a natural breakwater of limestone near Carlingford, which the people in the neighbourhood are removing; this proceeding should be stopped, *Hoskyn* 3035-3037; *Ramsay* 3169-3172.

Witness has been engineer for 22 years to the Newry Navigation, *Ramsay* 3109-3111——Extent of the navigation, *ib.* 3110——In the year 1835 witness made a survey of the bar at Carlingford, and reported on the subject to the trustees of the navigation; this report handed in, *ib.* 3112-3120——Since 1835 the trade of Newry has from time to time pressed upon Government the importance of a harbour of refuge between Belfast Lough and Kingstown, *ib.* 3116, 3117——Witness estimated the cost of removing the bar at Carlingford at 23,046 *l.*, *ib.* 3118.

Nature of the bottom at Carlingford bar; there are no sandbanks there, or in the neighbourhood, *Ramsay* 3121-3126——Plan of witness for removing the boulder stones on the bar, and for dredging, so as to secure a proper depth and entrance, *ib.* 3126-3132——There need be no apprehension of any silting up after the improvement of the bar, *ib.* 3126. 3132-3135——Witness proposes to make the channel about 600 feet wide and 20 feet deep, *ib.* 3129, 3130. 3140-3143——It will not be necessary to remove any of the lights, or to place new ones, *ib.* 3136-3139. 3200——Explanations in detail relative to witness's plan, and its advantages, *ib.* 3144 *et seq.*

Good anchorage in the proposed harbour, *Ramsay* 3146-3148——The area inclosed would be 300 acres, or three times as much as at Kingstown, *ib.* 3149, 3150——Unavailableness generally of the new channel discovered by Mr. Hoskyn, *ib.* 3157-3159——Considerable

Report, 1857—*continued.*

Carlingford—continued.

Considerable loss of life and property by shipwreck in the neighbourhood of Carlingford Lough, *Ramsay* 3160-3163. 3177-3184——Numerous vessels from different places which would find a refuge in Carlingford Lough extremely desirable, *ib.* 3163. 3173-3176. 3188-3202——Witness considers that the expense of the harbour should not fall on Carlingford, or that tolls should be exacted for its use, *ib.* 3185-3187.

Advantage of a harbour of refuge at Carlingford in the case of American vessels caught in a south-west gale after leaving the Mersey, *Wherland* 3918-3923. 3970-3978. 4017-4019——Evidence in favour of Carlingford Lough as a very desirable site for a harbour of refuge in the case of vessels homeward or outward bound from Liverpool, *Bourne* 4033-4036. 4061-4063. 4080-4084. 4102, 4103.

Report of Mr. Ramsay on Carlingford Bay, dated 31st January 1854; with suggestions for its removal, *App. p.* 249.

Copy of Mr. Ramsay's Report on the Bar at Carlingford Lough, dated 15th October 1835; *App. p.* 257, 258.

List of Vessels driven on shore over the Newry Customs District from St. John's Point to Cooley Point inclusive, from December 1832 to December 1852; furnished by Captain Leonard Watson, *App. p.* 259, 260.

See also *Ardglass Harbour.* *Clogher Head.*

Carnsore Point (Irish Coast). See *Tuskar.*

Casualties. See *Collisions.* *Wrecks and Casualties.*

Chalk. Chalk is not available for breakwaters, *Coode* 1665-1667. 1780, 1781.

Cherbourg Harbour. At Cherbourg there are three forts on the breakwater, *Coode* 1732.

Clogher Head. Advantage of Clogher Head, on the Irish Coast, over the point of Skerries as a site for a harbour of refuge; probable cost, *Fraser* 2498-2503——Advantage of Carlingford Bay over Clogher Head for a harbour, *ib.* 2501-2511.

Close Harbours. Tendency of permanent or close harbours to silt up, *Calver* 2279, 2280.

Coal Trade. See *Colliers.* *Hartlepool.* *Sunderland.* *Trade or Traffic.* *Tyne, The.* *Wrecks and Casualties.*

Coaling Stations. Except at Cromarty, there is not at present any place on the north-east coast of Scotland where a steamer can coal, *Vetch* 740-744——Difficulty as regards the coaling of steamers going from the Thames to the Orkneys, *Sulivan* 1251-1255——Facilities for the coaling of large vessels at Aberdeen, *Calver* 2395-2396——Also in the natural harbours of the Orkneys, *ib.* 2397, 2398——At present there is no harbour between Flamborough Head and the Fern Islands where a man-of-war could coal, *Simey* 3779-3781.

Colliers. Return showing the number and tonnage of the sailing vessels cleared outward at the principal coal-ports on the north-east coast; explanation thereon, *Sulivan* 1045-1058——Tendency of the increased use of steam colliers to diminish wrecks, *Calver* 2407, 2408——The vessels chiefly wrecked on the east coast are colliers, *Jackson* 2695, 2596——Screw colliers are being added to the trade, but are not superseding sailing colliers, *ib.* 2697-2699——Several wrecks of screw colliers along the east coast, *ib.* 2835-2837.

See also *England, East and North-east Coast of.* *Hartlepool.* *Manning of Colliers, &c.* *Sunderland.* *Trade or Traffic.* *Tyne, The.* *Wrecks and Casualties.*

Collisions. The greater number of collisions of late years is attributable to the great increase of traffic and competition, *Washington* 213——The collisions respectively of steam vessels and sailing vessels can easily be ascertained, *ib.* 214——Increased number of collisions through steamers running into sailing vessels, *ib.* 1200-1203——Collisions do not often take place through want of harbours of refuge, *ib.* 1432.

Remarks relative to wrecks occurring from collisions; ill effect of the Act of Parliament containing directions as to the avoidance of collisions, *Robinson* 3524-3529. 3608-3625. 3637-3642——Rapid increase of wrecks through collisions, *ib.* 3545——Collisions rarely occur from want of showing lights; some are caused by lights being shown, *ib.* 3609-3612.

See also *Wrecks and Casualties.*

Report, 1857—*continued.*

Commission of Inquiry. Propriety of due consideration being given to the claims of the several ports before Government advances a sum in aid of a harbour of refuge at any particular place, *Calver* 2300. 2303. 2306-2308——Expediency of inquiry by a properly constituted commission as to the proper site for the proposed harbour on the east coast, *Cowen* 3381, 3382; *Robinson* 3684, 3685. 3903, 3904; *Simey* 3705-3707. 3718; *Alcock* 3804. 3817, 3818.

Composition Tolls. See *Tolls*, 3.

Convict Labour. Expediency of the employment of convict labour on harbours of refuge generally, as well as at Portland, *Washington* 381. 452——Practice in using convict labour to charge the works with the fair price of such labour, *ib.* 463-465.

Convict labour is employed at Portland in quarrying the materials, and filling it into waggons, after which, the waggons are delivered to the contractor, who again returns them empty, *Coode* 1527, 1528——Difficulty of saying whether there will be any saving at Portland by the employment of convict labour, *ib.* 1529 *et seq.*——Check to the economical progress of the works, and to the full employment of the free-labour establishment, on account of the frequent short supply of material delivered by the convict establishment, *ib.* 1530. 1557-1570. 1621-1624——Control of the convict department over the convicts, *ib.* 1530. 1532-1534——Discipline exercised and steps taken in order to obtain from each convict a fair amount of work, *ib.* 1533, 1534. 1539. 1692, 1693. 1736-1742.

Much less value of convict labour than free labour; estimate that the former is to the latter as one to two and a half, or three; explanation thereon, *Coode* 1535. 1542-1559. 1631-1637——Constant fluctuation and less efficiency at Portland by new men replacing old, *ib.* 1535. 1548. 1694-1696——Payment by the Admiralty since 1854 of only 6 *d.* weekly for the labour of each convict, *ib.* 1536-1541. 1707. 1805-1807——Less efficient character of the convicts during the latter period of the war, *ib.* 1549-1554. 1808——Economy of convict labour, if a certain quantity of material be delivered daily to the contractors, *ib.* 1561-1569. 1758——Injury to the stage at Portland by the prolongation of the works through the inadequacy of convict labour, *ib.* 1595-1599.

Doubt as to the Portland works having originated in a desire properly to test the value of convict labour, *Coode* 1614, 1615——Preliminary work done before convicts were employed, *ib.* 1616, 1617——Employment of free labour in some of the quarries, but not in those where the convicts have been employed, *ib.* 1624-1629. 1759-1761——Some of the material supplied by the convicts is prepared by them for building work, *ib.* 1630——Production by convict labour of many of the tools and plant used in the production and delivery of the material, *ib.* 1633-1635——More profitable employment of convicts when not engaged in skilled labour, *ib.* 1646.

Further reference to the inferiority of convict labour to free labour as regards the amount of work performed by the former at Portland, *Coode* 1689-1696. 1737-1740——Further consideration of the question of the cost of convict labour at Portland; it is at present a doubtful point whether such labour will have proved beneficial to the Admiralty, but on the whole witness anticipates that a saving may be effected, *ib.* 1697-1707. 1734-1746. 1752-1758. 1799-1808.

There are about 940 convicts now employed on Portland Breakwater; more could not just at present be conveniently employed, *Coode* 1752-1754——On the whole establishment there are about 1,500, *ib.* 1752——Considerable variation from time to time in the number of convicts on the works, *ib.* 1774-1779——Casualties in blasting at Portland are not more numerous in the case of the convicts than of the free labourers, *ib.* 1813, 1814——Captain Clay is the resident superintendent of convicts, *ib.* 1822.

Coode, John, C. E. (Analysis of his Evidence.)—Engineer-in-Chief on behalf of the Admiralty for the harbour of refuge and breakwater at Portland, 1448——Has been in superintendence of the works from their commencement, and has been chief engineer since the death of Mr. Rendel, 1449-1452.

Explanation of the system followed at Portland and Holyhead in regard to the construction of the stage, and the deposit of the stone, 1453-1461. 1470-1473——The plan adopted at Portland and Holyhead originated with Mr. Rendel, 1455——The deposit of the stone as conducted at Portland has been quite successful, more so than any other mode of constructing a breakwater, 1462. 1469. 1474. 1475. 1497-1504——Essential condition in forming the breakwater to use stone of various sizes, so as to prevent large interstices, 1463-1469. 1498-1504.

Decided reduction of cost and saving of time by making the Portland breakwater on the system of staging, 1476-1480. 1494——Wherever the stone is brought from the land side, the stage system is the most advantageous for discharging it, 1481, 1482——Where the stone is brought from a considerable distance, and by sea, as at Dover, the best plan of discharging it is from the vessel, 1483-1492——Necessarily tedious and expensive

Report, 1857—*continued.*

Coode, John C. E. (Analysis of his Evidence)—*continued.*

expensive character of the works at Dover, where the construction consists of masonry from the bottom, 1484–1492.

At Portland the consolidation and distribution of the stones are left to the action of the sea for four or five winters before the masonry is commenced; solid mass formed thereby for a foundation, 1495–1506. 1511, 1512——Particulars as to the masonry; where commenced, and how carried out, 1495. 1504–1526.——Advantage in part of the works at Portland of founding the wall in a depth of about twelve feet under low water, 1504. 1524–1526——Greater expense according as the masonry is carried below low water; less expense, however, of the rough deposit, 1507–1509. 1521–1524——Breadth of the Portland breakwater at the bottom, and at low-water mark and high-water mark; extent to which it slopes, 1509–1517.

Convict labour is employed at Portland in quarrying the materials, and filling it into waggons, after which, the waggons are delivered to the contractor, who again returns them empty, 1527, 1528——Difficulty of saying whether there will be any saving at Portland by the employment of convict labour, 1529 *et seq.*——Check to the economical progress of the works, and to the full employment of the free-labour establishment, on account of the frequent short supply of material delivered by the convict establishment, 1530. 1557–1570. 1621–1624.

Control of the convict department over the convicts at Portland, 1530. 1532–1534——Principle upon which the contractor at Portland is paid, 1530, 1531. 1654, 1655. 1743–1746——Much less value of convict labour than free labour; estimate that the former is to the latter as one to two-and-a-half, or three; explanation thereon, 1535. 1542–1559. 1631–1637——Payment by the Admiralty since 1854 of only 6*d.* weekly for the labour of each convict, 1536–1541. 1707. 1805–1807——Economy of convict labour, if a certain quantity of material be delivered daily to the contractors, 1561–1569. 1758.

Witness has not personally examined Wick, but has judged of the locality by chart and description, upon which he has made two estimates of the cost of a harbour of refuge there, 1574–1587.——Greater facility for obtaining rough deposit at Wick than at Portland, 1579. 1585——Wick Harbour should be constructed on the same principle as Portland Harbour, 1580——Witness's estimates of the cost of a harbour at Wick were founded upon his experience at Portland; confidence in their accuracy, 1581–1587. 1750, 1751.

Further statement as to the efficiency of the deposit at Portland by means of stages, 1588–1590——Less accidental circumstances to calculate upon when the construction is by means of a stage, than when it is mason work, 1590–1594——Injury to the stage at Portland by the prolongation of the works, through the inadequacy of convict labour, 1595–1599——Facility by means of a stage for constructing detached breakwaters, that is, breakwaters not starting from the land, 1602–1604——In many cases a breakwater without any masonry would be quite sufficient, 1605–1609——Summary of the advantages of construction by means of a stage, 1610–1613.

Doubt as to the Portland works having originated in a desire properly to test the value of convict labour, 1614, 1615——Preliminary work done before convicts were employed, 1616, 1617——Mr. Leather succeeded Messrs. Rigby as contractor in 1850 or 1851; 1618–1620——The contractor was bound to deposit in the breakwater all the stone supplied by the convicts, 1621–1623. 1644, 1645——Employment of free labour in some of the quarries, but not in those where the convicts have been employed, 1624–1629. 1759–1761——Some of the material supplied by the convicts is prepared by them for building work, 1639.

Production by convict labour of many of the tools and plant used in the production and delivery of the material, 1633–1635——Large quantity of material supplied which is not fit for the breakwater; steps being taken to send this to other places, 1636–1640——Some granite is used in facing a portion of the sea-wall, 1641——Less destruction of stage at Portland than at Holyhead, 1643——More profitable employment of convicts when not engaged in skilled labour, 1646.

There has been no alteration in the original plan for Portland as regards extent, 1647——The breakwater will be completed in about four years, 1648——Large accommodation to be given when the breakwater is complete; considerable accommodation already given, 1649–1653——Good character of the stone used at Portland and Holyhead, 1656–1661——Liability of the stone in Plymouth breakwater to be affected by marine animals, 1660–1662.

Difficulty of comparing the cost at Dover with that at Portland, 1663——There has been an ample supply of shingle at Dover for forming the concrete blocks, 1664——Objection to using the chalk at Dover in any part of the breakwater or pier, 1665–1667——Further evidence as to the depth under which, according to different circumstances, it is advisable to carry the masonry, 1668–1674. 1683–1688. 1708–1716——There would be no physical difficulty in removing by blasting a half-tide rock at a considerable distance from land, 1675–1682.

Report, 1857—*continued*.

Coode, John C. E. (Analysis of his Evidence)—*continued*.

Further reference to the inferiority of convict labour to free labour, as regards the amount of work performed by the former at Portland, 1689–1696. 1737–1740—— Further consideration of the question of the cost of convict labour at Portland; it is at present a doubtful point whether such labour will have proved beneficial to the Admiralty, but, on the whole, witness anticipates that a saving may be effected, 1697–1707. 1734–1746. 1752–1758. 1799–1808.

General principles affecting the action of the sea upon breakwaters, 1708–1715—— The Portland breakwater rests upon the Kimmeridge clay, 1716——Doubt as to its being safe to found upon sand, even by going to a considerable depth, 1717–1723. 1833, 1834——Practicability, by going to a proper depth, of forming a solid foundation on shingle, 1720–1723. 1833, 1834——Objections to floating breakwaters, 1724–1728——Facility for erecting powerful batteries on fixed breakwaters, 1729–1732——Value of small stones in constructing breakwaters further adverted to, 1747–1749.

There are about 940 convicts now employed on Portland breakwater; more could not just at present be conveniently employed, 1752–1754——The original estimate for the rough deposit was 558,959 *l.*; the cost will be about 634,000 *l.*; reason for the excess, 1762–1770——The masonry, or superstructure, was not included in the original estimate; its estimated cost, 1762, 1763. 1770–1773. 1815–1821——Object of the masonry along the inner breakwater, 1772. 1817——Considerable variation from time to time in the number of convicts on the works, 1774–1779——Availableness of sandstone, if at all siliceous, for the construction of breakwaters, 1782.

Great usefulness of a harbour of refuge at St. Ives, Penzance, or Padstow, 1783–1798. 1809, 1810——Liability of wood piles, if long in the water, to injury from marine insects, 1811——Increased cost at Portland in order to preserve the piles, 1811, 1812——Casualties in blasting at Portland are not more numerous in the case of the convicts than of the free labourers, 1813, 1814——Nature of the blasting arrangements, 1814——Belief that masonry will not be necessary for the outer breakwater; if required, it will cost about a third of the rough deposit, 1818. 1824–1832——Captain Clay is the resident superintendent of convicts, 1822——Mr. Dallas is the clerk of the works, 1823.

Cork Harbour. Refuge afforded by the cove of Cork in the case of vessels caught in a north-easterly gale in the mouth of the channel, *Fraser* 2447–2449.

Cornwall. Danger to vessels if caught in a north-west gale off parts of the coast of Cornwall, *Sulivan* 1234–1238.——*See* also *Penzance. St. Ives.*

Cost. Remarks relative to the probable cost of the several harbours of refuge contemplated by witness, and the means of defraying such cost, *Washington* 364–381——The class deriving most benefit from harbours of refuge should pay the tolls, and Government should not bear expense which legitimately should fall on the coasting trade, *Sulivan* 1109 *et seq.*, 1437–1443——Doubt as to the corporations at Hartlepool, Newcastle, or Sunderland, being willing to guarantee the repayment of money advanced by Government for a harbour of refuge, *Simey* 3735–3745——As regards the cost of improving local trading ports, Government should contribute something, and refuge should be free, *Robinson* 3896–3902. 3905.

See also *Carlingford. Convict Labour. Dover Harbour. Falmouth Harbour. Free Harbours. Hartlepool*, 4. *Holyhead. Insurance. Light Dues. Portland. St. Ives. Stage System of Construction. Sunderland. Tolls. Trading Harbours. Tyne, The (or Tynemouth)*, 5. 6. *Waterford Harbour. Wexford Harbour. Wick*, 6.

Cowen, Joseph. (Analysis of his Evidence.)—Chairman of the Tyne Improvement Commissioners, 3203——Appointment of the commission in 1850; its constitution and duties, 3204. 3213–3216——Boundaries to which the jurisdiction of the commission extends, 3205–3212——Reference to the dangerous bar across the mouth of the Tyne, and to the frequent shipwrecks upon it, 3217–3219——Contemplated construction of two piers, as authorised by Act of Parliament, whereby the bar will be improved, and the danger arising from the rocky coast on either side obviated, 3220–3232. 3370.

Explanation as to the tonnage rate upon vessels leaving the harbour, whereby it is contemplated to raise money for the construction and repair of the piers; the rate ultimately to cease, 3233–3250. 3300——Particulars as to the progress already made with the works, and the mode of construction adopted, 3251–3256. 3325. 3365–3367—— Improvement already effected in the bar by the increased scour consequent upon the works, though they have not yet gone beyond the bar, 3252, 3253. 3323, 3324. 3362–3364.

Considerable refuge now given to vessels passing along the east coast by the existing Tyne Harbour, 3257–3264. 3274, 3275. 3281–3289. 3327–3330. 3373–3376. 3400–3405——Particulars relative to the trade of the Tyne; it is nearly equal to the aggregate trade of Sunderland, Hartlepool, and the Tees, 3261. 3281–3288. 3308–3312. 3339. 3360, 3361——

Report, 1857—*continued.*

Cowen, Joseph. (Analysis of his Evidence)—*continued.*

3361——Consideration of the extent and character of the shelter to be afforded by the proposed piers, 3265–3271. 3289. 3303 *et seq.* 3409–3420——Refuge to be afforded in gales from the north-east, east, and south-east, 3272, 3273. 3313–3322. 3370–3376. 3484–3486.

Witness delivers in the Act of Parliament for the formation of the piers, 3276——Also a report by Mr. Walker, the engineer, for the works, 3276–3278, and *App. p.* 264–269——It has been estimated that the works might be completed in from five to seven years, 3279——Estimate of the cost of the piers as authorised by the Admiralty; further cost estimated if the piers be carried out into deeper water, 3280. 3368, 3369. 3406–3408. 3476–3478.

Summary of advantages possessed by the mouth of the Tyne over any other place on the north-east coast for a harbour of refuge, 3290–3294. 3301, 3302. 3306. 3483——Although a harbour of refuge is exceedingly desirable on the north-east coast, an outlay of public money would be much better applied in improving the existing harbours, 3294–3298. 3342–3345. 3353–3358——Strong disposition of masters of vessels to run for the ports for which they are bound, 3294. 3297——A charge upon vessels for using the harbour as a refuge would diminish the value of the harbour, but is the best mode of levying an income, if necessary, 3298–3300. 3469–3475. 3479, 3480——Extended accommodation at the Tyne by means of public money should be free to all ships using the harbour as a refuge, 3298–3300. 3482.

Depth of the entrance to the proposed harbour, and size of the vessels which would be enabled to make use of it, 3303–3307. 3331–3338. 3377–3380. 3409–3413——Peculiar advantage of the Tyne as a locality for the coaling of men-of-war; good character of its steam coal, 3306. 3340, 3341. 3359——Considerable number of wrecks opposite the Tyne, 3339. 3421–3423——Inferiority of Hartlepool to the mouth of the Tyne as the locality for a harbour of refuge, 3346–3352——Money might be very advantageously expended upon Sunderland, 3354——Exception taken to the term "dangerous decoys" as applied by Mr. Calvert to existing tidal harbours on the east coast, 3355–3357——Facility for procuring an ample supply of material for the proposed piers, 3365–3367.

Before any advance of public money in aid of a harbour of refuge on the east coast, a commission should be appointed to examine locally into the claims of each place, 3381, 3382——Strong objection to a system of passing tolls as a means of defraying the cost of a harbour of refuge, 3383–3399. 3425–3475. 3479, 3480——If the harbour be constructed at the expense of Government, it should be free, 3385——Question as to the effect of a harbour of refuge in diminishing the insurance paid upon ships; the same considered in connection with the question of a passing toll, 3389–3399. 3444–3469.

Deeper water in the harbour according as the piers are carried further out, 3411–3415——If the sands do not disappear, dredging will be resorted to, 3414——There is not likely to be much accumulation of sand or shoal after the completion of the piers, 3416–3417——The system of passing tolls for lighthouses does not form much, if any, argument in favour of similar tolls for harbour, of refuge, 3427–3443——Reference to an offer by the Tyne Commissioners to provide a sum equal to any advance by Government towards the proposed harbour, 3481, 3482.

Cromarty Firth. Cromarty Firth lies so deeply in the bay, that few vessels think of running for it, *Washington* 39——The Firth of Cromarty is a safe harbour, but there is a great difficulty in reaching it, *Vetch* 487–491. 733–736. 900–902——Excellent harbour of refuge afforded by Cromarty Firth, *Calver* 1962–1971——Cromarty is a very good place for coaling, but as a naval station is much inferior to Wick, *ib.* 2216–2223——Cromarty is available for many of the circumstances with reference to which a harbour of refuge at Wick is proposed, *ib.* 2331–2336.

See also *Pentland Firth.*

D.

Douglas, Isle of Man. See *Man, Isle of.*

Dover Harbour. Dover Harbour will be very valuable when finished, and already affords most useful shelter, *Washington* 129.——Probability of the cost exceeding the estimate; the money will be well spent, *ib.* 371–373. 448, 449——The works are an upright wall from the foundation, there not being space for making the breakwater by slope, *ib.* 389. 434–439——Progress being made with the works; expediency of the eastern pier being commenced forthwith, *ib.* 435–445——Use of upright walls adverted to, *Vetch* 813–818.

Where the stone is brought from a considerable distance, and by sea, as at Dover, the best plan of discharging it is from the vessel, *Coode* 1483–1492——Necessarily tedious and expensive character of the works at Dover, where the construction consists of masonry from the bottom, *ib.* 1484–1492——Difficulty of comparing the cost at Dover

Report, 1857—*continued.*

Dover Harbour—continued.

with that at Portland, *Coode* 1663——There has been an ample supply of shingle at Dover for forming the concrete blocks, *ib.* 1664——Objection to using the chalk at Dover in any part of the breakwater or pier, *ib.* 1665–1667.

Witness was an advocate for the harbours at Portland and Dover, *Calver* 2097.

Dublin Bay. Dublin Bay and Kingstown Harbour are rather critical places to make for in a gale, *Wherland* 3921. 3951. 3966–3973. 4000–4003——Difficulty in getting into Dublin Bay in certain winds, *Bourne* 4034–4036.

Dunbar (*Firth of Forth*). A refuge harbour at Dunbar, as has been proposed, would be useful for local purposes only, *Washington* 94–99.——Greater advantage of an outlay at Dunbar than at Elie, *Vetch* 536–543. 680—— Further reference to Dunbar Harbour; best means of improving it, *ib.* 793–795. 866–869.

Great importance of Dunbar Harbour as a resort of fishing vessels, *Sulivan* 982–998. 1244——Belief as to the willingness of the fishing trade at Dunbar to pay towards improved accommodation, *ib.* 992——Defective construction which led to the failure of Dunbar Harbour, *ib.* 1033.

Remarks by Captain Vetch as to the usefulness of an expenditure of about 50,000 *l.*, *App. p.* 254.

Dundrum Bay. Unavailableness of Dundrum Bay as a site for a harbour of refuge, *Fraser* 2493–2497.

Dungeness. Obstacle to a harbour of refuge at Dungeness, *Vetch* 817——A harbour of refuge at Dungeness is not expedient, *Sulivan* 1419, 1420.

Dunning, John. (Analysis of his Evidence.)—Private engineer to the Middlesborough estate, and surveyor to the Middlesborough Corporation, 4192——Proposition for the construction of a breakwater at Hartlepool, from a little to the north of the Redcar Rocks to a little to the east of the Long Scar, 4193 *et seq.*——In connexion with this breakwater, witness also proposes one at the Tee's mouth, so as to divert the course of the channel more to the east, 4197——Area and depth of the harbour proposed to be inclosed, 4197.

It is contemplated to construct the breakwater of the refuse slag from the blast furnaces of the district, cast into blocks of twenty tons each, 4197——Witness also proposes to blast up part of the rocks called the West Scar, at Redcar, *ib.*——Advantages of witness's plan over those of Mr. Brooks and Mr. Rendel, 4198–4201——The plan of Mr. Bald for a breakwater at the Tees mouth would answer in all weathers, 4202–4204——Estimate of 924,000 *l.* as the cost of witness's plan, 4205–4218.

Length, depth, and breadth of the breakwater, and quantity of slag required for its construction, 4207. 4241–4262. 4273——Government should pay for the work, 4208, 4209——Particulars as to the plan of construction and the means of procuring the slag, 4213–4221. 4241–4291——It should be looked upon as a national work, and it would be an excellent station for Her Majesty's fleet, 4223–4228.

How far there would be any difficulty in certain winds of getting inside the breakwater, 4231–4241——Aggregate cost of about 1 *s.* 3 *d.* per cubic yard of putting the blocks together, 4251. 4274——At the rate of 500 tons of slag laid down daily, it would take from eighty to ninety years to complete the breakwater, which would require 15,000,000 tons, but at the end of four or five years very good protection would be afforded, 4273. 4276–4291.

[Second Examination.]—Further statement as to the quantity of slag which might be laid down daily, and as to the time required for the entire work; in eight or ten years sufficient would be done to form a very good harbour, 4353–4368——Doubt if a work at all equal to the demand can be executed in three or four years, 4360.

E.

East Coast. See *England, East and North-east Coasts of.*

Elie (*Firth of Forth*). A refuge harbour at Elie, as has been proposed, would be useful for local purposes only, *Washington* 89–94——Advantage if some 30,000 *l.* could be applied towards providing shelter at Elie, *Vetch* 536–539.

Remarks by Captain Vetch as to the usefulness of a pier at Elie, which might be constructed for 50,000 *l.*, *App. p.* 254.

England, East and North-east Coasts of. Great deficiency of proper harbour accommodation along the 150 miles of coast from St. Abb's Head to Flamborough Head, *Washington* 101–110. 301–308. 316, 317; *Vetch* 759 *et seq.*——Between Flamborough Head

Report, 1857—*continued.*

England, East and North-east Coasts of—continued.

Head and Dover there is no great necessity for a harbour of refuge, *Vetch* 578-581——Witness does not know any place between Tees Mouth and the Firth of Forth available for a harbour of refuge, *ib.* 745-751——Danger along the north-east coast generally to coasting vessels, *ib.* 937-939——Chief danger on that part of the coast from Flamborough Head to the Fern Islands, *Jackson* 2606-2611; *Robinson* 3493-3497. 3674, 3675——Urgent importance of a harbour of refuge somewhere on the north-east coast, *Simey* 3700-3702. 3718——Usefulness of a harbour of refuge on the north-east coast of England, although vessels in a gale of wind might not in the first instance make for it, *Bourne* 4119-4121.

Statements in Mr. Calver's Report of 6th December 1856 in illustration of the necessity of a harbour of refuge somewhere on the embayed coast north of Flamborough Head, *App. p.* 245-247.

See also *Baltic Trade. Colliers. Hartlepool. Insurance. Manning of Colliers, &c. Redcar. Sunderland. Tees Bay. Tees Mouth. Trade or Traffic. Tyne, The (or Tynemouth). Wind (North-east Coast).*

England, South-east Coast of. Mention of several ports or harbours between Bridlington Bay and Ramsgate as already providing very good accommodation and refuge for shipping, *Washington* 121-128——Difficulty of the navigation between Yarmouth and London, *Robinson* 3493, 3494.

England, South Coast of. Absence of pressing demand for further harbours of refuge along the south coast, *Washington* 129-136——Along the south coast a harbour is not needed, save at the Land's End, *Vetch* 582-585——How far there is any special demand for a harbour of refuge between Portsmouth and Dover, *ib.* 819-834——On the south coast Portland and Plymouth afford sufficient refuge, *Sulivan* 1077-1080.

England, West Coast of. From St. Ives Bay to the Solway Frith any large additional harbour of refuge is not necessary, *Washington* 148-154; *Vetch* 596-599.

See also *Holyhead.*

F.

Falmouth Harbour. Advantage of a small outlay on Falmouth Harbour, more especially if the packets move further westward, *Washington* 136-140. 219-225. 332-336——Facility for useful improvement at Falmouth Harbour without much expense, *Vetch* 658-661——Objection to removing the rock and pyramid in the entrance to Falmouth Harbour, *Sulivan* 1276-1278——Something should be done at Falmouth by local funds to deepen the inner harbour, *ib.* 1278.

Falmouth Harbour might be much improved by the removal of the rock at the entrance, *Hosken* 2858-2862. 2928-2934. 2940-2943——Advantages of St. Just Pool, near Falmouth, as a means of refuge, *ib.* 2915-2921——Depth respectively of the inner and outer harbours at Falmouth, *ib.* 2930-2932.

Fern Islands. A harbour of refuge at the Fern Islands, as well as at Wick, is not desirable, *Sulivan* 1270-1272——Danger to vessels running northwards if they attempt in an east or north-east gale to make for the Fern Islands, *ib.* 1409-1413.

See also *England, East and North-east Coasts of. Wrecks and Casualties.*

Firth of Forth. See *Forth, Firth of.*

Fishery Board. Practice of the Fishery Board in regard to advances in aid of local advances, *Sulivan* 1311, 1314.

Fishing Harbours. Willingness of the fishermen generally in Scotland to pay tolls towards harbour accommodation, *Sulivan* 992——Propriety of fishing vessels maintaining any harbour when completed for them, *ib.* 1167——Willingness of the fishermen in many places to pay interest on loans by Government for making harbours, *ib.* 1310——Considerable benefit if small sums were expended on the fishing harbours, *Robinson* 3862-3867.

See also *Bournemouth. Buckhaven Harbour. Dunbar. Penzance.*

Flamborough Head See *England, East and North-east Coasts of. Wrecks and Casualties.*

Floating Breakwaters. Objections to floating breakwaters, *Coode* 1724-1728——The cost would probably be equal to that of fixed breakwaters, *ib.* 1726, 1727.

Floating Lights. Objection to floating lights, as near Dublin and Liverpool, *Wherland* 3984-3991. 4002, 4003.

Report, 1857—*continued.*

Forth, Firth of. Reference to harbours proposed on the Firth of Forth; the Firth itself is a good natural harbour, and witness does not recommend a refuge harbour along that coast, *Washington* 88–100——Shelter in the Firth of Forth from easterly gales, *ib.* 359——Excellent refuge afforded by the Firth of Forth, *Sulivan* 1002; *Calver* 1956. 2229——*See* also *Dunbar. Elie.*

Foundation for Breakwaters. Doubt as to its being safe to found breakwaters upon sand, even by going to a considerable depth, *Coode,* 1717–1723. 1833, 1834——Practicability, by going to a proper depth, to form a solid foundation on shingle, *ib.* 1720–1723. 1833, 1834.

Fowler, John (Analysis of his Evidence.)—Civil Engineer, 4292——Proposes to construct a pier on the north side of the entrance to the Tees, the effect of which will be to throw a greater scour upon the bar, and thus to increase its depth to fifteen or twenty feet at low water spring-tides, 4293–4298. 4300. 4303–4306——Computation that the proposed pier, or harbour of refuge, would be completed in eleven months, 4298. 4331–4338——Increased accommodation to be given to shipping by the proposed pier, 4298. 4301, 4302. 4307, 4308.

Estimate of 70,000 *l.* as the cost of the pier or breakwater; this should fall on Government, 4298. 4313–4317. 4330——Estimate of 11,000 *l.* to be defrayed locally as the cost of a guiding-wall to be built in conjunction with the breakwater, 4299. 4310——Instances of increased depth of water through means of works similar to that proposed by witness, 4303–4305.

The guiding-wall will be 15,000 feet long, and constructed of slag; its object, 4311, 4312. 4318–4320. 4323–4327——Length of the pier, and quantity of slag required in its construction, 4314. 4328–4338——The pier should be first constructed, 4318–4320——Favour given by the Admiralty and several practical persons to the proposed pier, 4321, 4322. 4327.

Foyle, Lough. Lough Foyle is a very fine natural harbour, *Hoskyn,* 2999, 3000.

Fraser, Captain George Alexander, R.N. (Analysis of his Evidence.)—Resides near Dublin; has surveyed a large portion of the Irish coast, 2410–2416——The south-east coast is especially exposed to losses from shipwreck, 2417, 2418. 2600–2602——There are several losses on the coast about Carlingford Bay, 2419, 2420. 2601.——Importance of a place of refuge in Carlingford Bay; this might be effected at a comparatively small expense, 2421–2428. 2501. 2504–2511. 2554–2558. 2562–2566——Any improvement of Wexford Harbour would be available only for local purposes, 2429–2433. 2473. 2522–2524.

Great importance of removing, by dredging, the bar across the entrance to Waterford Harbour; considerable refuge to be afforded thereby, 2434–2446. 2528–2541. 2575–2597. 2600–2603——Refuge afforded by the Cove of Cork in the case of vessels caught in a north-easterly gale in the mouth of the channel, 2447–2449——Excellent refuge afforded by Milford Haven to vessels going up or down channel, 2450, 2451——Between Waterford and Cork a harbour of refuge is not required, 2459–2461——Fine natural harbours along the west coast, 2462——Also along the north coast, 2463, 2464.

Nature of the obstructions to the entrance to Wexford Harbour, 2468–2471. 2570–2574——Difficulty as regards a site for a refuge harbour between Kingstown and Waterford; Cahore Point is the most favourable spot, 2474–2480——A vessel leaving Liverpool, and caught in a south-westerly gale, could not get within Holyhead Harbour, 2481–2483——Reference to an attempt to improve the bar at Liverpool by raking, instead of dredging, 2487–2490——Unavailableness of Dundrum Bay as a site for a harbour of refuge, 2493–2497.

Advantage of Clogher Head over the Point of Skerries as a site for a harbour of refuge; probable cost, 2498–2503——Advantage of Carlingford Bay over Clogher Head for a harbour, 2501–2511——Peculiar eligibility of the islands of Skerries, off Portrush, for a harbour of refuge, 2512–2521——A large extent of land might be reclaimed from the sea at Wexford at a very trifling cost, 2525–2527——Facility for improving Waterford Harbour at a slight cost, 2528–2541.

Between Wexford and Waterford, or in the neighbourhood of Tuskar, Greenore Point is the most suitable locality for a refuge for vessels, but even it is objectionable, 2542–2553. 2567–2569——Witness never heard of a proposition for a harbour of refuge at Rathlin Island; the island is completely unconnected with the main coast, 2559–2561——With reference to Waterford Harbour, it would probably be dangerous to remove Coningbeg Rock, but a light might be placed upon it, 2598, 2599.

Free Harbours. If the proposed harbour on the east coast be constructed at the expense of Government, it should be free, *Cowen* 3385.

Report, 1857—*continued.*

G.

Grants of Public Money. See *Carlingford. Commission of Inquiry. Hartlepool*, 4. *Man, Isle of. St. Ives. Sunderland. Tidal Harbours. Tolls. Trading Harbours. Tyne, The (or Tynemouth)*, 6. *Waterford Harbour. Wexford Harbour. Wick*, 7.

Greenore Point (Irish Coast). See *Tuskar.*

Grimsby Docks and Basin. Excellent refuge afforded to ships by the Grimsby Docks and Basin, *Washington*, 121.

H.

HARTLEPOOL:

1. *Generally as to the advantages of Hartlepool as the Site for a Harbour of Refuge.*
2. *Its advantage as a Naval Station.*
3. *Considerable Trade of Hartlepool.*
4. *Means of defraying the Cost; Tolls now leviable.*
5. *Plan of the late Mr. Rendel.*
6. *Plans of Captain Veich and Mr. Calver.*
7. *Plan of Mr. Dunning.*
8. *Objections to Hartlepool as the Site of a Refuge Harbour; greater advantage of a Harbour at the Tyne.*

1. *Generally as to the advantages of Hartlepool as the Site for a Harbour of Refuge:*

Evidence in favour of a harbour of refuge at Hartlepool in Tees Bay, *Washington* 111-115. 186-199. 301-317. 320. 450-453——Reference to a report and chart by Mr. Calver relative to a harbour of refuge on the east coast, *ib.* 309. 317——Pre-eminent claim of the line of coast between St. Abb's Head and Flamborough Head to a grant of public money in aid of a harbour of refuge at Hartlepool, *Vetch* 759-768. 783, 784. 930-932.

Facility for procuring near Hartlepool the necessary material for a breakwater, *Vetch* 951-953; *Calver* 1912-1917. 2067-2075——Between the mouths of the Tyne and Tees there is no locality so suitable for a harbour of refuge as that near Hartlepool and Redcar, *Vetch* 963-968——The bight of the bay near Hartlepool is the most eligible site, *ib.* 965-968——Impression that Hartlepool is a better site than Redcar for a harbour, *Sulivan* 1074-1076.

Suggestions for the formation at Hartlepool of the proposed harbour so much required in Tees Bay; advantage of Hartlepool over any other locality on that coast, *Calver* 1888 *et seq.* 2042, 2043. 2146. 2294——Great saving of life and property if there were a harbour of refuge at Hartlepool, *ib.* 1933-1942. 2079-2083.

Reference to the immense loss of life and property in the storm in January last, as a loss which might have been prevented by a harbour of refuge at Hartlepool, *Calver* 1941, 1942; *Jackson* 2831, 2832——How far in a south-easterly gale a refuge at Hartlepool would be available or desirable, *Calver* 1954. 2285, 2286. 2312-2317——Nature of the bottom at Hartlepool; it is clay, with a deposit of sand, *ib.* 2117-2121——The bottom is a plain surface, without obstruction, *ib.* 2277, 2278.

Peculiar eligibility of Hartlepool Bay as a harbour of refuge, *Jackson* 2610-2612. 2668, *et seq.*——Although a harbour of refuge at Hartlepool will doubtless be a local benefit, witness advocates such harbour on the ground of its utility to the entire trade of the east coast, *ib.* 2668-2671. 2708. 2800. 2821——About 150,000 ships, of an average tonnage of 140 tons each, pass almost within sight of Hartlepool every year, *ib.* 2692-2694——The proposed harbour would obviate the great majority of wrecks between Flamborough Head and the Fern Islands, *ib.* 2707, 2708——There is no point north of Hartlepool Head suitable for a harbour of refuge, *ib.* 2772-2779.

Tendency of vessels to make towards Hartlepool; considerable number of wrecks occasionally on the beach there, *Heard* 4131-4134. 4139. 4172-4179——Remarks in favour of Hartlepool as the best site on the coast for a harbour of refuge, *ib.* 4131-4142. 4160-4168. 4172——Vessels are sometimes run upon the beach in order to save life, *ib.* 4133, 4134. 4176-4179.

Statements in Mr. Calver's Report of 6th December 1856, in favour of the selection of Hartlepool Bay as the site for a harbour of refuge, *App. p.* 245-249.

Views of Captain Vetch in favour of Hartlepool as the site for the proposed harbour, *App. p.* 253.

Report, 1857—*continued.*

HARTLEPOOL—continued.

2. *Its advantage as a Naval Station:*

Advantage of the harbour as a naval station in time of war, *Washington* 453——Importance of accommodation for men-of-war in Hartlepool Harbour of Refuge, *Calver* 2247-2254. 2309——Advantage of Hartlepool as a coaling station for cruisers in time of war, *Jackson* 2822.

3. *Considerable Trade of Hartlepool:*

Evidence relative to the trade of Hartlepool; immense increase in the exports of West Hartlepool since its establishment, about nine years ago, *Jackson* 2646-2651. 2689, 2690. 2801-2803——The trade of Hartlepool has not been at all interfered with by railway borne coals, *ib.* 2700-2703——Distinction between Old Hartlepool and West Hartlepool as regards the extent of trade of each; the tolls are the same in both harbours, but are managed by different commissioners, *ib.* 2801-2806.

4. *Means of defraying the Cost; Tolls now leviable:*

Suggestions in detail, and examination thereon, in regard to the vessels which should pay a toll for a harbour at Hartlepool, and the mode of levying a toll in each case, *Sulivan* 1117 *et seq.* 1173-1184. 1190-1194. 1290-1293. 1306, 1307. 1337-1368——All vessels from any port south of Hull to some port further south, or to the continent, should be exempt, *ib.* 1124. 1140. 1306. 1346. 1350——Opinion, that if the trade long ago had made the harbour, they would by this time have saved the money to have paid for it, *ib.* 1155, 1156. 1360——All vessels sailing to or from ports in the neighbourhood of the harbour should pay passing tolls, *ib.* 1175-1182. 1290, 1291.

Examination to the effect that a refuge harbour at Hartlepool being required mainly for the passing trade, it is proper that the trade should pay towards such harbour, and that Government should be the less expected to pay, inasmuch as it would not be a national work, like that at Portland or Dover, *Sulivan* 1323-1341——Government should build the harbour, and should be repaid by the trade, *ib.* 1359-1363.

Particulars relative to the public port-toll payable to the Hartlepool Commissioners in respect of all ships entering the trading harbours; it now amounts to about 7,000 *l.* a year, *Jackson* 2629-2635. 2739-2747——Increase of the toll according to the amount of money expended upon the piers, and the increased use to be made of the harbour, *ib.* 2635-2637. 2644, 2645. 2653. 2684. 2739. 2745-2747——Funds by which a portion of Mr. Rendel's plan has been carried out, *ib.* 2638-2641——Failure of attempts by the commissioners of the port to borrow money on the security of the port toll; applications to the Public Works Loan Commissioners adverted to hereon, *ib.* 2639. 2641-2643. 2652-2667——Suggestion as to Government advances in aid of the harbour, *ib.* 2672——Amount of the toll to be levied on ships for using the harbour; it should be a tonnage toll; estimate of the total receipts, *ib.* 2683-2688. 2739-2746. 2793-2798.

Peculiar advantage in forming a harbour at Hartlepool on account of the tolls leviable by the Port Commissioners, *Jackson* 2800——Right of Government, if they advance money towards the proposed harbour, to remunerate themselves by such tolls as they think fit, *ib.* 2814. 2838, 2839——If Government should raise the money for the harbour, they should be represented on the local Board, and might receive the toll, *ib.* 2844-2848——Present constitution of the commission of the port of Hartlepool; the Board of Trade appoint three members out of fourteen, *ib.* 2844——There would be no objection to Government having a veto upon the proceedings of the commissioners, *ib.* 2847. 2848.

Estimated revenue from the Hartlepool Harbour of Refuge on the present system of toll; total of 55,570 *l.* 9 *s.*, *App. p.* 262, 263——Estimated revenue of Hartlepool Refuge Harbour, supposing a uniform district tonnage toll charged, *ib.* 263——Comparison of Hartlepool Refuge Harbour tolls by a uniform district tonnage, or only when the harbour is actually entered, *ib.*

5. *Plan of the late Mr. Rendel:*

Remarks on a plan of the late Mr. Rendel for a harbour at Hartlepool, at an estimated cost of 800,000 *l.*, *Washington* 111. 367, 377——Character of the works contemplated; how the material is to be obtained, *ib.* 368-370. 466——Very large accommodation to be provided by Mr. Rendel's proposed works, *Sulivan* 1402-1406.

Explanation relative to the plan designed by the late Mr. Rendel for converting Hartlepool Bay into a harbour of refuge, at an estimated cost of 800,000 *l.*; its advantages, *Jackson* 2612-2628. 2668 *et seq.*——Existence since 1855 of an Act of Parliament sanctioning the proposed harbour, *ib.* 2612-2615. 2730. 2732——About 720 feet of the northern pier planned by Mr. Rendel have been executed, *ib.* 2614. 2616. 2733. 2753-2756——The proposed harbour would render available about 1,000 acres at high-water spring tides, and 840 acres at low-water spring tides, *ib.* 2617, 2618——The harbour would be protected from all winds, *ib.* 2619——It would be perfectly easy of ingress and egress, *ib.* 2620.

In three or four years from the commencement of the works the real advantage of the harbour would be obtained, but the works would require about six years for completion, *Jackson*

Report, 1857—*continued.*

HARTLEPOOL—continued.

Jackson 2621. 2625-2628——The estimate of 800,000 *l.* is ample, *ib.* 2622-2624——Consideration as to the expediency of certain openings in the piers designed by Mr. Rendel; suggestions hereon, *ib.* 2708-2719. 2725-2732. 2752. 2840, 2841——Consideration as to the plan of construction with a view to prevent an accumulation of sand; belief that there need be no apprehension of the harbour silting up, *ib.* 2717-2719. 2725-2729. 2752-2763. 2786-2788. 2840, 2841.

Plan of construction, as regards the deposit of the stone, according to Mr. Rendel's design; he contemplated using immense blocks, and building from the bottom, *Jackson* 2733-2738——Availableness of the stage system in carrying out the works, *ib.* 2736-2738——Witness cannot give an opinion upon the relative value of Captain Vetch's plan and Mr. Rendel's plan, *ib.* 2819, 2820.

Remarks by Captain Vetch as to the danger of the harbour sanding up, if Mr. Rendel's plan be strictly followed, *App. p.* 253——Estimate by Captain Vetch that the work contemplated by Mr. Rendel would not be accomplished under ten years, or at a less than one million, *ib.*

Report of Mr. Calver, dated 31st May 1855, in consideration of Mr. Rendel's plan, and containing suggestions as to the mode of construction, *App. p.* 277, 278.

6. *Plans of Captain Vetch and Mr. Calver:*

Suggestions for the formation of a detached breakwater near Hartlepool, as at Plymouth: its advantage, *Vetch* 545-560. 654-657. 673-679. 681-684——Paper containing suggestions by witness relative to a detached breakwater, running from Seaton Snook, *ib.* 547——Estimate of 109,000 *l.* as the cost of the work, *ib.*——Advantage of a detached breakwater running parallel with the shore rather than of one projecting from the shore, *ib.* 674-677. 752-758. 796-799——Advantage of the proposed breakwater over the works proposed by Mr. Rendel, *ib.* 681-684.

Further evidence in favour of a detached breakwater in Tees Bay; it would be a protection not only to Hartlepool harbour, but a means of refuge to all vessels passing by that coast, *Vetch* 752-784. 907-939——Witness has only thought of the formation of a breakwater since he had notice to attend the Committee, and has not completed his views on the subject, *ib.* 758. 908. 920. 950.

The works at Hartlepool should be a detached breakwater, leaving an ingress and egress north and south; advantage of this construction over a close harbour, *Calver* 1888 *et seq.*——Further evidence relative to the plan of breakwater most desirable; objection to the plan of Mr. Rendel, *ib.* 2232-2246. 2295-2299——Reference to Mr. Calver's views in regard to the plan of the proposed piers; value attached to them, *Jackson* 2715. 2725-2732. 2752.

Suggestions by Captain Vetch for a detached breakwater, as the most desirable plan of harbour, *App. p.* 253.

Report by Mr. Calver, dated 31 May 1855, *App. p.* 277, 278.

7. *Plan of Mr. Dunning:*

Witness is private engineer to the Middlesborough estate, and surveyor to the corporation of Middlesborough, *Dunning* 4192——Proposition for the construction of a breakwater at Hartlepool, from a little to the north of the Redcar Rocks to a little to the east of the Long Scar, *ib.* 4193 *et seq.*——Area and depth of the harbour proposed to be inclosed, *ib.* 4197——It is contemplated to construct the breakwater of the refuse slag from the blast furnaces of the district, cast into blocks of twenty tons each, *ib.*——Advantages of witness's plan over those of Mr. Brooks and Mr. Rendel, *ib.* 4198-4201——Estimate of 924,200 *l.* as the cost of the plan, *ib.* 4205-4218.

Length, breadth, and depth of the breakwater, and quantity of slag required for its construction, *Dunning* 4207. 4241-4262. 4273——Government should pay for the work, *ib.* 4208, 4209——Particulars as to the plan of construction and the means of procuring the slag, *ib.* 4213-4221. 4241-4291——It should be looked upon as a national work; it would be an excellent station for Her Majesty's fleet, *ib.* 4223-4228——How far there would be any difficulty in certain winds of getting inside the breakwater, *ib.* 4231-4241——Aggregate cost of about 1 *s.* 3 *d.* per cubic yard of putting the blocks together, *ib.* 4251. 4274.

At the rate of 500 tons of slag laid down daily, it would take from eighty to ninety years to complete the breakwater, which would require 15,000,000 tons; but at the end of four or five years very good protection would be afforded, *Dunning* 4273. 4276-4291.

Further statement as to the quantity of slag which might be laid down daily, and as to the time required for the entire work; in eight or ten years sufficient would be done to form a very good harbour, *Dunning* 4353-4368——Doubt if a work at all equal to the demand can be executed in three or four years, *ib.* 4360.

Report, 1857—*continued.*

HARTLEPOOL—continued.

8. *Objections to Hartlepool as the Site of a Refuge Harbour; greater Advantage of a Harbour at the Tyne:*

Inferiority of Hartlepool to the mouth of the Tyne as the locality for a harbour of refuge, *Cowen* 3346-3352——Ineligibility of Hartlepool or Tees Bay as a site for a harbour of refuge; adequate space could not be provided, *Robinson* 3502-3509. 3634-3636. 3653. 3665-3673——There is only sixteen feet depth at low water at a certain distance from Hartlepool Point, *ib.* 3509. 3634-3636——Improbability of vessels caught in an easterly or south-easterly gale to the north of Tees Bay making for a harbour of refuge there, instead of going on to the Tyne, *ib.* 3549-3556. 3643-3653. 3666-3668——Vessels leaving the Tyne and caught in a north-east wind would hardly make for a harbour at Hartlepool, *ib.* 3571, 3572——Question whether many of the ships lost in the gale on the 4th January 1854, would have been saved by a place of refuge at Hartlepool; a good harbour at the Tyne would have saved the bulk of them, *ib.* 3643-3653——Apprehension of the proposed harbour silting up, *ib.* 3670, 3671.

Practical objection to a harbour of refuge at Hartlepool, on account of the probability of its silting up, *Alcock* 3800——Less value of a harbour at Hartlepool than at the Tyne, when there is a gale from the south-east, *Robinson* 3871-3876.

See also *Commission of Inquiry. Cost. England, East and North-East Coasts of. Redcar. Sunderland. Tees Bay. Tees Mouth. Tyne, The (or Tynemouth), 3. 8. Wrecks and Casualties.*

Harwich Harbour. Great use of Harwich harbour as a refuge to shipping, *Washington* 127——Since 1838 Harwich Harbour has been available for refuge on a large scale, *Calver* 2390-2393.

Heard, Thomas, R.N. (Analysis of his Evidence.)—Is in the coast guard on the coast of Durham and Northumberland; is a commander in the navy, 4122-4124——Is stationed at Sunderland and has four years' experience of the coast, 4125-4130. 4159——Tendency of vessels to make towards Hartlepool; considerable number of wrecks occasionally upon the beach there, 4131-4134. 4139. 4172-4179——Remarks in favour of Hartlepool as the best site on the coast for a harbour of refuge, 4131-4142. 4160-4168. 4172.——Numerous wrecks occasionally at the mouth of the Tyne, 4137. 4155.

Danger on the coast when the gale is from the east or east south-east, 4140-4142. 4167——Tendency of masters to run for the port to which they belong, 4143-4145——Doubt as to the eligibility of Hendon Bay near Sunderland, as a site for a harbour of refuge, 4154-4157——Depth of water at the wear, 4158——Question whether the smaller vessels wrecked in entering the Tyne in gales could have kept out at sea, 4169-4172——Remarks relative to the works at the mouth of the Tyne; doubt as to their improving the depth over the bar, 4180-4185——Disadvantage in vessels having to go some distance up a river to anchor as at the Tyne, 4182, 4183. 4186, 4187——Difficulty occasionally in getting out of the Tyne without the use of steam tugs, 4188-4191.

Hendon Bay. See *Sunderland.*

Holyhead Harbour. Great value of Holyhead Harbour; approval of the expenditure for its extension, *Washington* 151, 152. 382-416——Statement as to the estimate and cost of this harbour; it will be a cheaper breakwater than Plymouth or Cherbourg, *ib.* 383-387. 397-414. 446, 447——Remarks upon the course to be adopted in finishing the works at Holyhead, that is, as regards the superstructure of mason work upon the rubble work, *ib.* 388-390. 394-396. 406-430——It would be most miserable economy not to carry out the extended plan, *ib.* 417, 418——The Holyhead route to Ireland was selected for the mails, &c. by almost general concurrence, *ib.* 431-433——Reasons for the expense of Holyhead Breakwater being greater than that of Portland, *ib.* 454-462——Great advantage of a refuge at Holyhead for Liverpool shipping, *ib.* 1381-1384——Improbability of Holyhead diverting much trade from Liverpool, *Sulivan* 1372, 1373.

Witness is now employed in making a critical survey of the Harbour of Holyhead, *Calver* 1839-1841——Satisfactory progress being made with the Holyhead works, *ib.* 1842. 1849-1853——The harbour will be an inestimable advantage to shipping, *ib.* 1843——The entire extension from the original plan has doubled the value of the harbour, *ib.* 1854-1858——Nature of the masonry on the top of the rubble work at Holyhead, *ib.* 1862-1865——Necessity of masonry to secure the breakwater, *ib.* 1866-1868.

Further reference to witness's survey of Holyhead Bay, *Calver* 2044-2050——Extensive accommodation to be afforded at Holyhead; further means of refuge are not necessary, *ib.* 2051-2053——Absence of any appearance of injury to the breakwater at Holyhead, *ib.* 2106-2111——Further statement as to the course pursued at Holyhead in regard to the foundation of the masonry on the rubble work, *ib.* 2261-2276.

A vessel

Report, 1857—*continued.*

Holyhead Harbour—continued.

A vessel leaving Liverpool and caught in a south-westerly gale could not get within Holyhead Harbour, *Fraser* 2481–2483——Holyhead is a good harbour in any wind, *Hoskin* 2907–2911——Objection to Holyhead Harbour as being a lee harbour; difficulty of getting out of it, *Wherland* 3946–3948. 4027; *Bourne* 4048–4051. 4089–4097.

See also *Liverpool.*

Hoskin, Captain James, R.N. (Analysis of his Evidence.)—Is acquainted more particularly with the south-west and west coasts of England, 2849–2852——Some of the harbours on these coasts require improvement, but a new harbour of refuge is not required, 2853, 2854——An improvement might be made at Newhaven Harbour, 2855–2857——Falmouth Harbour might be much improved by the removal of the rock at the entrance, 2858–2862. 2928–2934. 2940–2943——A harbour of refuge at St. Ives Bay would be very useful; its eligibility over other localities, 2863–2866. 2880–2891. 2923.

A refuge at Waterford Harbour would be useful, but Milford Haven or Holyhead would be, generally, more available, 2869–2879. 2892–2901——Steamers, but not sailing vessels, leaving Liverpool, may safely go round the north coast of Ireland, 2902–2906——Holyhead is a good harbour in any wind, 2907–2911——Doubt as to Douglas, Isle of Man, being a good place of refuge for sailing vessels, 2912–2914——Advantages of St. Just Pool, near Falmouth, as a means of refuge, 2915–2921——Doubt whether there is any place on the north side of the Bristol Channel available for a harbour of refuge, 2936, 2937.

Hoskyn, Richard. (Analysis of his Evidence.)—Master in the navy, 2944——Has been engaged for twelve years on the surveying service on the east coast of Ireland; nature of these surveys, and of the reports accompanying them, 2945–2950. 3096–3103——The removal of the bar at the entrance of Waterford Harbour might easily be accomplished, and would render the harbour extremely useful as a place of refuge; particulars hereon, 2951–2966. 3038–3043. 3065–3086. 3106——Worse bar at Wexford than at Waterford; much less eligibility of the former than of the latter place as a harbour of refuge, 2959–2967. 3041–3048. 3061–3064. 3069, 3070. 3104, 3105.

Evidence relative to Carlingford and in favour of removing the bar; this might be done by dredging for about 30,000 *l.*, and would render available a most useful place of refuge, 2968–2987. 3010–3016. 3025–3035. 3056–3060. 3090–3094——New channel of entrance discovered by witness at Carlingford; suggestions for bringing it into use, 2970–2979——Vessels which would be accommodated by a harbour at Carlingford, 2979–2987. 3056–3060.

Usefulness of a pier at Red Bay, on the coast of Antrim; it is already a first-rate roadstead, 2988–2992. 3024——Many sailing vessels from Liverpool go round by the North of Ireland, 2992. 3007–3009——Nature of the shelter at the Skerries on the Antrim coast; a pier there would be a great improvement, 2993–2998. 3002. 3017–3020. 3095——Lough Foyle is a very fine natural harbour, 2999, 3000——Many wrecks occur on the Antrim coast, &c., which might be prevented if there were a harbour of refuge there, 3004–3006——Lough Larne is a fine natural harbour, but is very small, 3021–3023.

Reference to a natural breakwater of limestone near Carlingford which the people in the neighbourhood are removing, 3035–3037——A harbour of refuge either at Greenore Point or Carnsore Point, south of Wexford, would be a great advantage on account of the dangerous reefs near Tuskar, 3049–3054——During six or eight years witness observed no change in the bar at Waterford, 3083–3086——Witness has never seen the large sailing vessels from Liverpool tugged down the Channel, 3107, 3108.

Howth Harbour. Uselessness, comparatively, of Howth Harbour, though it has been very expensive, *Washington* 172, 173——Reference to the accumulation of sand at Howth, *Vetch* 796. 908.

Humber, The. Fine natural harbour afforded by the Humber, *Vetch* 580.

I.

Insurance. Belief that a toll, as giving a right to use a harbour on the east coast, would reduce the insurances so much that vessels would save by the charge, *Sulivan* 1151–1155. 1358, 1359. 1397–1401——Check to harbours of refuge so long as insurance is resorted to, *ib.* 1169. 1288, 1289——Statement by Captain Sulivan to the effect that a toll of one penny per ton would be saved by a very slight reduction in the insurance of colliers, &c., *Q.* 1447——Gain to the shipping interest by the prevention of wrecks, even though by insurance at Lloyd's or mutual insurance, the losses do not now fall directly on the shipowners, *Jackson* 2720–2724. 2749–2751.

Insurance—continued.

Question as to the effect of a harbour of refuge in diminishing the insurance paid upon ships; the same considered in connexion with the question of a passing toll, *Cowen* 3389-3399. 3444-3469——Principle of mutual insurance amongst the shipowners upon which ships on the coast are insured; less charge, as there are fewer wrecks, *ib.* 3397-3399. 3444-3453——Gain to shipowners under the mutual insurance system if wrecks were prevented by harbours of refuge, *Robinson* 3513-3521——Doubt as to any material effect upon the rate of insurance if there were a harbour of refuge on the north-east coast, *Robinson* 3602-3605. 3613, 3614; *Alcock* 3809-3815.

Ireland, Coasts of. Sufficient natural harbours along the west coast of Ireland; *Washington* 158; *Vetch* 612. 645, 646; *Sulivan* 1090-1092; *Fraser* 2462——Adequate harbour accommodation on the north coast of Ireland, *Washington* 159-162. 273; *Sulivan* 1284-1286; *Fraser* 2463, 2464——Along the south and south-west coast, the Cove of Cork and Bantry afford excellent shelter, *Washington* 184, 185——Between Waterford and Cork a harbour of refuge is not easily available at any point, *Vetch* 643, 644. 719, 720.

The north-east coast is especially exposed to losses from shipwrecks, *Fraser* 2417, 2418. 2600-2602——Between Waterford and Cork a harbour of refuge is not required, *ib.* 2459-2461——Difficulty as regards a site for a refuge harbour between Kingstown and Waterford; Cahore point is the most favourable spot, *ib.* 2474-2480.

Witness has been engaged for twelve years on the surveying service on the east coast of Ireland; nature of these surveys, and of the reports accompanying them, *Hoskyn* 2945-2950. 3096-3103——Danger in the channel chiefly when the wind is north-west or south-west, *Wherland* 3919, 3920. 3936-3939——Dangerous banks along the Irish coast, from Tuskar up to Carlingford, *ib.* 3949, 3950.

See also *Antrim Coast.* *Ardglass Harbour.* *Bann River.* *Carlingford.* *Skerries, The.* *Tuskar.* *Waterford Harbour.* *Wexford Harbour.*

Isle of Man. See *Man, Isle of.*

J.

Jackson, Ralph Ward. (Analysis of his Evidence.)—Is one of the Commissioners of the port of Hartlepool, 2604, 2605——Great importance of a harbour of refuge on the east coast, between Flamborough Head and the Fern Islands, 2606-2611——Peculiar eligibility of Hartlepool Bay as a harbour of refuge, 2610-2612. 2668 *et seq.*——Explanation relative to the plan designed by the late Mr. Rendel, for converting Hartlepool Bay into a harbour of refuge at an estimated cost of 800,000*l.*; its advantages, 2612-2628. 2668 *et seq.*

About 720 feet of the northern pier, planned by Mr. Rendel, has been executed, 2614. 2616. 2733. 2753-2756——In three or four years from the commencement of the works, the real advantage of the harbours would be obtained, but the works would require about six years for completion, 2621. 2625-2628——The estimate of 800,000*l.* is ample, 2622-2624.

Particulars relative to the public port-toll payable to the Hartlepool Commissioners in respect of all ships entering the trading harbours; it now amounts to about 7,000*l.* a year, 2629-2635. 2739-2747——Increase of the toll according to the amount of money expended upon the piers, and the increased use to be made of the harbours, 2635-2637. 2644, 2645. 2653. 2684. 2739. 2745-2747——Funds by which the portion of Mr. Rendel's plan has been carried out, 2638-2641——Failure of attempts by the commissioners of the port to borrow money on the security of the port-toll; applications to the Public Works Loan Commissioners adverted to hereon, 2639. 2641-2643. 2652-2667.

Evidence relative to the trade of Hartlepool; immense increase in the exports of West Hartlepool since its establishment, about nine years ago, 2646-2651. 2689, 2690. 2801-2803——Although a harbour of refuge at Hartlepool will doubtless be a local benefit, witness advocates such harbour on the ground of its utility to the entire trade of the east coast, 2668-2671. 2708. 2800. 2821——Suggestion as to Government advances in aid of the harbour, 2672.

Evidence in favour of refuge tolls, that is, tolls for the actual use of the harbour, rather than of passing tolls, 2673-2680. 2748-2751. 2764-2770. 2792. 2807-2814——Belief that the masters of colliers or other vessels would not be deterred from using the harbour by the condition of having to pay for it, 2675. 2678, 2679. 2686, 2687. 2807-2813. 2842, 2843——Considerable saving to the shipping interest, by having a harbour, and paying for its use; loss of about 125,000*l.* a year between Flamborough Head and the Fern Islands adverted to hereon, 2679. 2686. 2704-2707. 2720-2724. 2829-2832.

Statement relative to the trade of the east coast, with particulars as to the tonnage exports of those ports for whose ships a harbour of refuge at Hartlepool would be available, 2681-2694. 2789, 2790. 2824-2828——Amount of the toll to be levied on ships for using the harbour; it should be a tonnage toll; estimate of the total receipts, 2683-2688. 2739-2746. 2793-2798——About 150,000 ships, of an average tonnage of 140 tons each, pass almost within sight of Hartlepool every year, 2692-2694.

The

Report, 1857—*continued.*

Jackson, Ralph Ward. (Analysis of his Evidence)—*continued.*

The vessels chiefly wrecked on the east coast are colliers, 2695, 2696——Screw colliers are being added to the trade, but are not superseding sailing colliers, 2697–2699——The trade of Hartlepool has not been at all interfered with by railway-borne coals, 2700–2703——The proposed harbour would obviate the great majority of wrecks between Flamborough Head and the Fern Islands, 2707, 2708.

Consideration as to the expediency of certain openings in the piers designed by Mr. Rendell; suggestions hereon, 2708–2719. 2725–2732. 2752. 2840, 2841——Reference to Mr. Calver's views in regard to the plan of the proposed piers; value attached to them, 2715. 2725–2732. 2752——Consideration as to the plan of construction with a view to prevent an accumulation of sand; belief that there need be no apprehension of the harbour silting up, 2717–2719. 2725–2729. 2752–2763. 2786–2788. 2840, 2841.

Gain to the shipping interest by the prevention of wrecks, even though by insurance at Lloyd's, or mutual insurance, the losses do not now fall directly on the shipowners, 2720–2724. 2749–2751——Plan of construction, as regards the deposit of the stone, according to Mr. Rendel's design; he contemplated using immense blocks, and building from the bottom, 2733–2738——Availableness of the stage system in carrying out the works, 2736–2738——Shipowners might be allowed to compound by an annual payment for the use of the harbour, 2766, 2770.

There is no point north of Hartlepool Head suitable for a harbour of refuge, 2772–2779——Neither Hendon Bay nor the White Stoves, near Sunderland, is an eligible locality for a harbour of refuge, 2780–2785——Peculiar advantage in forming a harbour at Hartlepool, on account of the tolls leviable by the port commissioners, 2800——Distinction between Old Hartlepool and West Hartlepool as regards the extent of trade of each; the tolls are the same in both harbours, but are managed by different commissioners, 2801–2806.

Impression that the colliers on the east coast are not efficiently manned, 2807, 2808——Greater efficiency of the manning since the Mercantile Marine Act, 2808——Increased trade along the coast if there were a harbour as proposed, 2811——Right of Government, if they advance money towards the harbour, to remunerate themselves by such tolls as they think fit, 2814. 2838, 2839——As regards Wick, on the north-east coast of Scotland, some protection for vessels is necessary, 2815–2818.

Witness cannot give an opinion upon the relative value of Captain Vetch's plan and Mr. Rendel's plan for Hartlepool, 2819, 2820——Advantage of Hartlepool as a coaling station for cruisers in time of war, 2822——The total wrecks for the United Kingdom in 1855 were 1,141, and in 1856, 1,153; 2823——Greater want of harbours of refuge according as finer and larger vessels are used, 2833, 2834——Several wrecks of screw-colliers along the east coast, 2835–2837.

If Government should raise the money for the proposed harbour, they should be represented on the local Board, and might receive the toll, 2844–2848——Present constitution of the commission of the port of Hartlepool; the Board of Trade appoint three members out of fourteen, 2844——There would be no objection to Government having a veto upon the proceedings of the commissioners, 2847, 2848.

Jackson, Mr. Sundry Returns put in by Mr. Jackson, and referred to in his evidence, *App. p.* 261–264.

K.

Kingstown Harbour. The works at Kingstown have been very successful as a shelter for shipping, *Washington* 174; *Vetch* 622.——*See* also *Dublin Bay.*

L.

Land's End. Want of a harbour of refuge near the Land's End, *Washington* 136.

See also St. Ives.

Larne, Lough. The natural harbour of Lough Larne, on the north coast of Ireland, is very useful, *Washington* 161, 162. 273——Lough Larne is a fine natural harbour, but is very small, *Hoskyn* 3021–3023.

Light Dues. Explanation of the principle adopted by the Trinity House in levying tolls for lights and lighthouses; all vessels which pass pay a toll, *Sullivan* 1107–1115. 1125, 1126——The principle used in levying light tolls might, with some modification, be adopted in levying tolls for harbours of refuge, *ib.* 1116 *et seq.* 1168. 1173. 1190——The system of passing tolls for lighthouses does not form much, if any, argument in favour of similar tolls for harbours of refuge, *Cowen* 3427–3443——Absence of analogy between light dues and passing tolls, *Robinson* 3855——Doubt as to the propriety of applying any available surplus from the light dues to the erection of a harbour of refuge, *ib.* 3906–3912.

Report, 1857—*continued.*

Lights for Sailing Ships. Expediency of a system of lights for sailing vessels as well as for steamers, *Sulivan* 1203.

Liverpool. Illustration, as shown by witness's personal experience in 1851, of the great want of a refuge harbour for the Liverpool shipping, such refuge however being now almost provided by Holyhead Harbour, which will be invaluable to Liverpool, *Sulivan* 1088, 1089. 1185–1189. 1381–1384——Fairness in charging the Liverpool trade a small toll in regard to Holyhead Harbour, *ib.* 1374–1384.

Reference to the raking of the bar at Liverpool as a failure, *Fraser* 2487–2490; *Hoskyn* 3013–3016——Steamers, but not sailing vessels, leaving Liverpool, may safely go round the north coast of Ireland, *Hosken* 2902–2906——Many sailing vessels from Liverpool go round by the north of Ireland, *Hoskyn* 2992. 3007–3009——Witness has never seen the large sailing vessels from Liverpool tugged down the channel, *ib.* 3107, 3108.

See also *Holyhead.*

Longhope. Advantage of Wick over Longhope as a naval station in time of war, *Vetch* 894–896——Longhope is a very fine harbour, *Calver* 2189.

Loss of Life. Loss of life by shipwreck in each of the last five years; average of 830 lives yearly, *Washington* 30–32——Gradual diminution in the lives lost; reasons assigned, *ib.* 32, 33——Anticipation that the number of lives will be one-half saved by harbours of refuge and other means, *ib.* 33——Average of 829 lives lost by shipwreck, &c. in each year for the last five years, *Sulivan* 1098——The wrecks and loss of life were very low in 1856, *ib.* 1098.

Loss of Property. Estimated loss of a million and a quarter in each year for the wrecks, and a quarter of a million for the other casualties, *Washington* 22–29——Between the Fern Islands and Flamborough Head the annual loss is about 130,000 *l.*, *Sulivan* 1061. 1095, 1096——Estimate of at least a million and a half as the amount of loss arising from shipwreck and casualty on the coasts of the United Kingdom, *ib.* 1095–1106——Considerable saving to the shipping interest by having a harbour and paying for its use; loss of about 125,000 *l.* a year between Flamborough Head and the Fern Islands adverted to hereon, *Jackson* 2679. 2686. 2704–2707. 2720–2724. 2029–2832.

See also *Insurance.* *Wrecks and Casualties.*

Lundy (*Bristol Channel*). Bad anchorage at Lundy, *Hosken* 2885.

Lynn Deeps. Lynn Deeps offer a natural harbour of refuge, *Washington* 122, 123.

M.

Man, Isle of. An outlay of about 30,000 *l.* in erecting a breakwater at Douglas would be exceedingly beneficial, *Washington* 133–156. 260, 261——Douglas is a better site than Ramsay, *ib.* 260——As regards the Isle of Man a public harbour of refuge is not very desirable, but a breakwater pier at Douglas would be very useful, *Vetch* 600, 601. 606–610——An expenditure by Government on Port Erin, for local purposes, would be a great boon to the island, *ib.* 602–605——Further reference to the means of providing shelter for shipping at Douglas Bay, *ib.* 662–664.

Doubt as to Douglas being a good place of refuge for sailing vessels, *Hosken* 2912–2914——Disadvantage of the Isle of Man, in its being nearly embayed, as a locality for a harbour of refuge, *Wherland* 3954–3956. 3976, 3977——Less eligibility of Douglas than of the Irish coast for a harbour of refuge, *Bourne* 4064–4067.

Manning of Colliers, &c. Improved character of the masters and captains of coasting vessels in consequence of the Mercantile Marine Act, *Washington* 34, 35. 310–312——Class of vessels and character of their captains along the south coast, *Vetch* 823–829——Class of vessels and character of the masters on the east coast, adverted to in connexion with the numerous wrecks upon that coast, *ib.* 842–851. 930–932——Impression that not one-tenth of the wrecks arise from bad seamanship, *ib.* 850, 851.

Remarks as to the capability or otherwise of the commanders and seamen of the colliers, *Calver* 2353–2360. 2405——The colliers generally are not efficiently manned, *ib.* 2353–2358——Impression that the colliers on the east coast are not efficiently manned, *Jackson* 2807, 2808——Greater efficiency of the manning since the Mercantile Marine Act, *ib.* 2808——Evidence relative to the character of the masters and crews, and of the vessels, on the east coast; how far improvement may have taken place of late years, *Robinson* 3533–3544. 3626–3633.

Masonry (*Breakwaters*). Approval of upright walls of masonry begun upon the rubble work below low water mark, *Washington* 388–390——Preference given to upright walls over vertical walls in the construction of breakwaters, *Vetch* 812–816——Greater expense according.

Report, 1857—*continued.*

Masonry (*Breakwaters*)—continued.

according as the masonry is carried below low water; less expense, however, of the rough deposit, *Coode* 1507–1509. 1521–1524——Evidence as to the depth under which, according to different circumstances, it is advisable to carry the masonry, *ib.* 1668–1674. 1683–1688. 1708–1716——Much less expense and more rapid construction in building upon rubble work than from the bottom, *Calver* 1869–1871.

See also *Dover Harbour. Holyhead Harbour. Portland.*

Mercantile Marine Act. Excellent working of the Mercantile Marine Act, *Washington* 33–35. 310–312.——*See* also *Manning of Colliers, &c.*

Milford Haven. Great value of the natural harbour of Milford Haven, *Washington* 148; *Sulivan* 1085, 1086——Anticipation that as regards the immensely increasing trade of Liverpool some of it will be diverted to Milford, which, as a port, has great advantages, *Sulivan,* 1279. 1371–1373——Excellent refuge afforded by Milford Haven to vessels going up or down the Channel, *Fraser* 2450, 2451——Disadvantage of Milford Haven as a harbour of refuge, it being on a lee shore; it is not much used, *Wherland* 3930–3932. 3941. 3979. 4004–4010—— Objection to Milford Haven on account of the difficulty of getting out of it, *Bourne* 4039–4043. 4104–4107.

N.

National Defence. Facility for erecting powerful batteries on fixed breakwaters, *Coode* 1729–1732.——*See* also *Naval Stations.*

Naval Stations. Doubt as to a large harbour on the north-east coast being much used by Her Majesty's ships of war, *Vetch* 940–942.

See also *Coaling Stations. Hartlepool,* 2. *Longhope. Scrabster. Tyne, The* (*or Tynemouth*) 3. *Wick* 2.

Newbegin. Objection to Newbegin, near Blyth, as the site of a harbour of refuge, *Calver* 1883–1887.

Newcastle-upon-Tyne. See *Tyne, The* (*or Tynemouth*).

Newhaven. An improvement of the natural Harbour of Newhaven would be a great benefit at a small cost, *Washington* 129——Except for local purposes, an improvement of Newhaven Harbour is not desirable, *Calver* 2376–2381——An improvement might advantageously be made at Newhaven, *Hosken* 2855–2157.

New Quay. Objection to a harbour of refuge at New Quay instead of at St. Ives, *Washington* 145. 338. 342–344.

Norfolk Coast. Objections to a harbour of refuge on any parts of the coast of Norfolk, *Sulivan* 1068–1073——Obstacle to a harbour of refuge on the coasts of Norfolk and Suffolk, on account of the enormous mass of shifting sand, *Calver* 1878–1880——Movement of the sand on the east coast further adverted to; its effect upon the Lowestoff and Yarmouth banks, *ib.* 2112–2116.

North-east Coast. See *England, East and North-east Coasts of.*

O.

Orkney and Shetland Islands. There are numerous natural harbours in the Orkneys and Shetland, *Washington* 40; *Calver* 2070–2189——Deep water entrance to the Orkneys and Stromness, *Washington* 352, 353——As regards the Shetland Islands and the Orkneys, the natural harbours of those islands are very good, and the wrecks arising from storms and tidal currents cannot be obviated by harbours of refuge, *Vetch* 472–476 —— Objection to the harbours of the Orkneys on account of the strong currents, *Calver* 2190, 2191.

P.

Padstow. Obstacles to a harbour of refuge at Padstow, *Washington* 235. 338–341—— Advantage of St. Ives over Padstow Harbour as a site for a harbour of refuge, *Sulivan* 1083. 1426–1430.

Report of Captain Washington on Padstow Harbour; suggestions as to the best means of improving the same, *App. p.* 250.

Memorial of the magistrates, merchants, shipowners, traders, and other inhabitants of Wadebridge (within the port of Padstow) agreed to at a public meeting, *App. p.* 274.

Report of Messrs. Rennie, dated 22 August 1836, as to the harbour and proposed breakwater at Padstow, *App. p.* 275–277.

Report, 1857—*continued.*

Passing Tolls. See *Hartlepool*, 4. *Light Dues.* *Tolls*, 1. *Wick*, 7.

Pentland Firth. To the northward of Wick, Pentland Firth and Cromarty Bay afforded excellent refuge, *Calver* 2024–2029——Dangerous use made by many vessels of Pentland Firth, instead of going to the northward of Orkney, *ib.* 2400, 2401.

Penzance. Advantage if there were a fishing harbour made in Mount's Bay, at Penlee Point, near Penzance, *Washington* 334–337——Some small works would be useful at Penzance, *Vetch* 583–585——A fishing harbour at the Mouse Hole, near Penzance, would be very desirable, *Sulivan* 1421, 1422.

Peterhead. Reference to a proposal by Mr. David Stephenson for a harbour of refuge at Peterhead, at an estimated cost of 228,000 *l.*, *Washington* 84–87——Less claim and eligibility of Peterhead than of Wick for a harbour of refuge, *Washington* 215–218. 354–356; *Sulivan* 1037, 1038. 1219–1228——Considerable benefit to shipping if a harbour of refuge could be constructed at Peterhead as well as at Wick; natural difficulties in the case at Peterhead, *Vetch* 665–672. 791, 792——In 1846 Witness narrowly examined Peterhead, *ib.* 946, 947——Much greater trade of Wick than of Peterhead, *Sulivan* 1221–1226——Ineligibility of Peterhead as a site for a harbour of refuge, *Calver* 1966–1968. 2127–2139.

Report to the trustees of the harbours of Peterhead, by D. and T. Stephenson, civil engineers, dated August 1857, *App. p.* 280.

Plymouth Harbour. Plymouth is an excellent harbour of refuge, *Washington* 133–135——Erroneous use at first of large stones exclusively in forming Plymouth breakwater, *Coode* 1465——Liability of the stone in Plymouth breakwater to be affected by marine animals, *ib.* 1660. 1662——Probable risk in coaling inside Plymouth breakwater, *Calver* 2213, 2214——For purposes of refuge Plymouth breakwater is very effective, *ib.* 2215.

Porthdinllaen. Ineligibility of Porthdinllaen, in Carnarvon Bay, as a site for a harbour of refuge, *Bourne* 4089–4098.

Portland. Portland is rapidly becoming a very valuable harbour of refuge, *Washington* 132——The breakwater, which will cost above a million sterling, is being made cheaper than any other breakwater in the kingdom, that is, at 85 *l.* a lineal foot, *ib.* 374–376. 454–457.

Witness is engineer-in-chief, on behalf of the Admiralty, for the harbour of refuge and breakwater at Portland, *Coode* 1448——Has been in superintendence of the works from their commencement, and has been chief engineer since the death of Mr. Rendel, *ib.* 1449–1452——The deposit of the stone, as conducted at Portland, by means of a fixed stage, has been quite successful, more so than any other mode of constructing a breakwater, *ib.* 1453–1462. 1469. 1474, 1475. 1497–1504——Essential condition, in forming the breakwater, to use stone of various sizes, so as to prevent large interstices, *ib.* 1462–1469. 1498–1504. 1747–1749.

Decided reduction of cost and saving of time by making the breakwater on the system of staging, *Coode* 1476–1480. 1494——The consolidation and distribution of the stones are left to the action of the sea for four or five winters before the masonry is commenced; solid mass formed thereby for a foundation, *ib.* 1495–1506. 1511, 1512——Particulars as to the masonry; where commenced, and how carried out, *ib.* 1495. 1504–1526——Advantage in part of the works of founding the wall in a depth of about twelve feet under low water, *ib.* 1504. 1524–1526——Breadth of the breakwater at the bottom and at low-water mark and high-water mark; extent to which it slopes, *ib.* 1509–1517.

Principle upon which the contractor at Portland is paid, *Coode* 1530, 1531. 1654, 1655. 1743–1746——Further statement as to the efficiency of the deposit by means of stages, *ib.* 1588–1590——Mr. Leather succeeded Messrs. Rigby as contractor in 1850 or 1851, *ib.* 1618–1620——The contractor was bound to deposit in the breakwater all the stone supplied by the convicts, *ib.* 1621–1623. 1644, 1645——Large quantity of material supplied which is not fit for the breakwater; steps being taken to send this to other places, *ib.* 1636–1640——Some granite is used in facing a portion of the sea wall, *ib.* 1641.

There has been no alteration in the original plan for Portland as regards extent, *Coode* 1647——The breakwater will be completed in about four years, *ib.* 1648——Large accommodation to be given when the breakwater is complete; considerable accommodation already given, *ib.* 1649–1653——Good character of the stone used at Portland and Holyhead, *ib.* 1656–1661——The Portland breakwater rests upon the Kimmeridge clay, *ib.* 1716.

The original estimate for the rough deposit was 558,959 *l.*; the cost will be about 634,000 *l.*; reason for the excess, *Coode* 1762–1770——The masonry or superstructure was not included in the original estimate; its estimated cost, *ib.* 1762, 1763. 1770–1773. 1815–1821——Object of the masonry along the inner breakwater, *ib.* 1772. 1817——Increased cost at Portland in order to preserve the piles, *ib.* 1811, 1812——Nature of the blasting

Report, 1857—*continued.*

Portland—continued.

blasting arrangements, *Coode* 1813, 1814——Belief that masonry will not be necessary for the outer breakwater; if required, it will cost about a third of the rough deposit, *ib.* 1818. 1824–1832.

See also *Convict Labour.*

Portrush. see *Skerries, The.*

Pulteney Town Harbour. Unavailableness of the harbour at Pulteney Town as a refuge harbour for Wick, *Washington* 46, 47——Reference to the Pulteney Town Harbour, Wick, as having silted up very much, *Calver* 1973–1975. 1987. 2142–2152.

R.

Ramsay, John. (Analysis of his Evidence.)—Engineer for twenty-two years to the Newry Navigation, 3109. 3111——Extent of the navigation, 3110——In the year 1835 witness made a survey of the bar at Carlingford, and reported on the subject to the trustees of the navigation; this report handed in, 3112–3120——Since 1835 the trade of Newry has from time to time pressed upon Government the importance of a harbour of refuge between Belfast Lough, and Kingstown, 3116, 3117——Witness estimated the cost of removing the bar at Carlingford at 23,046 *l.*; 3118.

Nature of the bottom at Carlingford bar; there are no sandbanks there or in the neighbourhood, 3121–3126——Plan of witness for removing the boulder-stones on the bar, and for dredging, so as to secure a proper depth and entrance, 3126–3132——There need be no apprehension of any silting up after the improvement of the bar, 3126. 3132–3135.

Witness proposes to make the channel about 600 feet wide, and 20 feet deep, 3129, 3130. 3140–3143——It will not be necessary to remove any of the lights or to place new ones, 3136–3139. 3200——Explanations in detail relative to witness's plan, and its advantages, 3144 *et seq.*——Unavailableness generally of the new channel discovered by Mr. Hoskyn, 3157–3159.

Considerable loss of life and property by shipwreck in the neighbourhood of Carlingford Lough, 3160–3163. 3177–3184——Numerous vessels from different places which would find a refuge in Carlingford Lough extremely desirable, 3163. 3173–3176. 3188–3202——Inexpediency of expending 300,000 *l.* on a harbour of refuge at Ardglass, when one can be provided at Carlingford for 25,000 *l.* 3164–3168——Propriety of preventing the removal of the natural breakwater of limestone at Carlingford by the people of the county of Louth, 3169–3172.

Witness considers that the expense of the harbour should not fall on Carlingford, or that tolls should be exacted for its use, 3185–3187.

Ramsay, Isle of Man. See *Man, Isle of.*

Rathlin Island. Witness never heard of a proposition for a harbour of refuge at Rathlin Island; the island is completely unconnected with the main coast, *Fraser* 2559–2561.

Red Bay (Antrim). Usefulness of a pier at Red Bay, on the coast of Antrim; it is already a first-rate roadstead, *Hoskyn* 2988–2992. 3024.

Redcar. In deciding upon the exact site of a harbour in Tees Bay, Redcar must be carefully examined, *Washington* 185. 315——Grounds for objecting to Redcar as the site of a harbour of refuge, *Sulivan* 1074–1076; *Calver* 2122–2125. 2310, 2311——Witness proposes, in his scheme, to blast up part of the rocks called the West Scar, at Redcar, *Dunning* 4197.

Statement in Mr. Calver's report of 6th December, in objection to Redcar as the site for the proposed harbour, *App. p.* 247, 248.

Refuge Tolls. See *Tolls,* 2.

Rendel, The late Mr. The plan of construction by means of a fixed stage, as adopted at Portland and Holyhead, originated with Mr. Rendel, *Coode* 1455.

See also *Hartlepool,* 5. *Portland. Stage System of Construction.*

Robinson, John. (Analysis of his Evidence.)—Considerable experience of witness in regard to the navigation of the east coast, 3487–3492——Difficulty of the navigation between Yarmouth and London, 3493, 3494——Chief danger on that part of the coast from Flamborough Head to the Fern Islands, 3493–3497. 3674, 3675——Very good shelter now afforded by the Tyne, though a bar harbour, 3498–3501——Ineligibility of Hartlepool,

Report, 1857—*continued.*

Robinson, John. (Analysis of his Evidence)—continued.

Tees Bay, as a site for a harbour of refuge; adequate space could not be provided, 3502-3509. 3634-3636. 3653. 3665-3673——Advantage of expenditure in improving the mouth of the river at Sunderland, 3510-3512. 3656-3661.

Gain to shipowners under the mutual insurance system if wrecks were prevented by a harbour of refuge, 3513-3521——About twenty-five per cent. of the wrecks on the east coast might be prevented by a harbour of refuge, 3522, 3523——Numerous class of wrecks which a harbour of refuge would not obviate, 3524. 3530-3532——Remarks relative to wrecks occurring from collisions; ill effect of the Act of Parliament containing directions as to the avoidance of collisions, 3524-3529. 3608-3625. 3637-3642.

Evidence relative to the character of the masters and crews, and of the vessels on the east coast; how far any improvement may have taken place of late years, 3533-3544. 3626-3633——Rapid increase of wrecks through collisions, 3545——Numerous wrecks through vessels making, in a gale, for the harbours to which they are bound, 3546, 3547——General endeavour of captains, when caught in a gale, to make for the port of their destination, 3547-3549——Improbability of vessels taken in an easterly or south-easterly gale to the north of Tees Bay making for a harbour of refuge there instead of going on to the Tyne, 3549-3556. 3643-3653. 3666-3668.

Better expenditure of public money in improving the existing tidal harbours than in making new harbours, 3550. 3654, 3655——Danger on the east coast chiefly when the gale is south-east, 3551, 3552. 3665——Course of the vessels on leaving the Tyne; the majority of vessels from the Tyne, the Wear, and the Tees go to the south or east, 3557-3569——The American vessels from the Tyne chiefly go north, by the Pentland Firth, 3560-3564. 3606, 3607——A north-east wind is not so dangerous on the coast as an east-north-east to east-south-east wind, 3570. 3673——Vessels leaving the Tyne, and caught in a north-east wind, would hardly make for a harbour at Hartlepool, 3571, 3572.

Further evidence in favour of a harbour of refuge at the Tyne, as a far more eligible locality than any other on the north-east coast, 3573. 3662-3676 *et seq.*——Depth of water at the entrance to the proposed harbour; depth at the present time, 3575-3594——Increased depth through the works now in progress; greater increase as the proposed piers are completed, 3594-3597——Average size of the vessels frequenting the Tyne, 3598-3601.

Doubt as to any material alteration in the rate of insurance if there were a harbour of refuge at the Tyne, 3602-3605. 3613. 3614——Question whether many of the ships lost in the gale on 4th January 1854 would have been saved by a place of refuge at Hartlepool; a good harbour at the Tyne would have saved the bulk of them, 3643-3653——Refuge in a harbour at the Tyne as well as in one at Hartlepool in the case of vessels taken in a gale to the south, 3674-3676——Improbability of a silting up of the proposed Tyne harbour, 3677-3681——About 2,000 ships could be accommodated by the harbour, 3683——A commission should be appointed, with whom the selection of a site for the harbour on the north-east coast should rest, 3684, 3685.

[Second Examination.]—Grounds for objecting to passing tolls as a means of defraying the expense of a harbour of refuge, 3854, 3855. 3886-3889——Absence of analogy between light dues and passing tolls, 3855——The shipping interest would not object to pay a toll for the actual use of the harbour, 3856, 3857——Greater prevention of wrecks by improving the existing harbours than by constructing one large harbour of refuge, 3858-3861. 3894-3896——Considerable benefit if small sums were expended on the fishing harbours, 3862-3867.

Further statement as to the importance of a harbour of refuge when the wind is from the south-east, 3868-3875——Less value of a harbour at Hartlepool than at the Tyne when there is a gale from the south-east, 3871-3876——Present practice at the Tyne in regard to the tolls paid by vessels; practice contemplated in the event of a public grant for a harbour of refuge there, 3877-3884——Prevention of many wrecks if vessels did not make for port or get embayed, 3885.

Considerable extent to which wrecks south of the Tyne might be prevented if there were a harbour of refuge at the Tyne, 3890-3894——As regards the cost of improving the local ports, Government should contribute something, and refuge should be free, 3896-3902. 3905——Further opinion, that there should be a fairly constituted commission to inquire into the site for a harbour of refuge on the east coast, 3903, 3904——Doubt as to the propriety of applying any surplus available from the light dues to the erection of a harbour of refuge, 3906-3912.

Rough Deposit. Value of small stones in constructing breakwaters, in order to fill up the interstices, *Coode* 1463-1469. 1498-1504. 1747-1749——In many cases, a breakwater without any masonry would be quite sufficient, *ib.* 1605-1609——Depth at which the action of the sea is chiefly felt by the rough deposit, *ib*, 1608, 1609. 1668-1673. 1683-1688.——*See* also *Stage System of Construction.*

Report, 1857—*continued.*

S.

Saint Ives. Around the Land's End, St. Ives is the most eligible point for a harbour of refuge, and would afford most useful shelter, *Washington* 140-147. 347, 348; *Sulivan* 1081-1084. 1423-1430; *Hoskyn* 2863-2866. 2880-2891. 2923——Advantage of St. Ives over certain other sites along that coast as a site for a harbour, *Washington* 226-235. 338-348——The estimate of Captain Vetch for St. Ives harbour was 175,000*l*, *ib.* 318, 319——The Bristol Channel trade would be especially accommodated by the proposed harbour, *ib.* 347, 348.

At St. Ives a harbour of refuge would be extremely useful; suggestions hereon, *Vetch* 585-594——Total estimate of 174,000*l.* if the works proposed by witness be carried out in their entirety; one-half this amount would accomplish much, *ib.* 588-591. 883, 884——Evidence in favour of the proposed harbour at St. Ives instead of one at Penzance, or any other place along the coast, *ib.* 800, 801. 852-862. 870-891. 954-959. 969, 970——The anchorage at St. Ives is very good, *ib.* 889.

Many wrecks about the Land's End might have been saved by a harbour of refuge at St. Ives, *Sulivan* 1296-1298——Great usefulness of a harbour of refuge at St. Ives, Penzance, or Padstow, *Coode* 1783-1798. 1809, 1810.

Suggestions by Captain Vetch as to the works required at St. Ives, *App. p.* 253.

Sandstone. Availableness of sandstone, if at all siliceous, for the construction of breakwaters, *Coode*, 1782.

Scotland, Coasts of. Occurrence of casualties on that part of the coast of Scotland, from the Firth of Forth to the Orkneys, *Washington* 36——Urgent want of a proper harbour of refuge on the north-east coast of Scotland, *ib.* 39-47——Along the east coast of Scotland a good many wrecks occur, but hardly enough to warrant a large harbour of refuge at any particular spot, *ib.* 83——The numerous natural harbours on the west coast obviate the necessity of any harbour of refuge there, *ib.* 157. 264.

A harbour of refuge is not expedient at any point north of Wick, *Vetch* 477, 478——On the west coast of Scotland the bight of Wigton Bay might be made available for a harbour of refuge, but the coast generally is well provided with natural harbours, *ib.* 606——Absence of demand for any harbour of refuge on the west coast of Scotland for sea-going ships, *Sulivan* 979, 980——The south-west coast is abundantly provided with natural harbours, *ib.* 1239, 1240.

Several trading harbours on the east coast adverted to; inexpediency of a harbour of refuge along the coast, *Calver* 1959-1968. 2230, 2231——The west coast abounds with natural harbours, *ib.* 2038, 2039.

See also *Aberdeen Harbour. Cromarty Firth. Dunbar. Elie. Forth, Firth of. Orkney and Shetland Islands. Pentland Firth. Scrabster. Wick.*

Scrabster. Large number of vessels taking refuge in Scrabster, *Sulivan* 1021. 1241——Inexpediency of public outlay for a better harbour at Scrabster, *ib.* 1241-1243——Scrabster Harbour is very safe, but is very small, *Calver* 2031-2034——Availableness of Scrabster Road as a coaling station, &c. in time of war; it is preferable to a harbour at Wick, *ib.* 2198-2212. 2224-2228.

Seaford. Witness was in favour of a harbour of refuge at Seaford, and still considers it would be very useful, *Calver* 2097, 2098. 2255-2259.

Shetland Islands. See *Orkney and Shetland Islands.*

Shingle. Danger to breakwaters at Redcar and other places from the shingle travelling along the coast, *Sulivan* 1229-1233.

Simey, Thomas Boyes. (Analysis of his Evidence.)—Surveyor of shipping at Sunderland; has been in command of a ship on that coast, 3686——Frequency of wrecks and loss of life in the neighbourhood of Sunderland, 3687——Danger on the coast when the wind is from the east of north-east, or east-south-east, 3688——Excellent dock and good depth of water at Sunderland, 3689——Ineligibility of the mouth of the Wear as a site for a harbour of refuge, 3690-3693. 3715-3717.

Evidence in favour of a harbour of refuge at Hendon Bay, a little south of the present sea outlet from Sunderland dock; explanation of a plan hereon by Mr. Murray, 3694 *et seq.*——Very considerable shipping trade of Sunderland, 3698, 3699. 3713——Sunderland is the largest ship-building port in the kingdom, 3698——Urgent importance of a harbour of refuge somewhere on the north-east coast, 3700-3702. 3718——The estimated cost of

Report, 1857—*continued.*

Simey, Thomas Boyes. (Analysis of his Evidence)—*continued.*

Mr. Murray's harbour at Sunderland is 850,000 *l.*, 3704. 3772–3775——Expediency of local inquiry as to the proper site for a harbour being undertaken by a commission of practical nautical men and engineers, 3705–3707. 3718.

Approval of a toll for the use of a harbour of refuge, as the only toll that can be levied without objection, 3708, 3709. 3712. 3728–3730——Objection to a system of passing tolls, 3710, 3711——Doubt as to the corporations at Hartlepool, Newcastle, or Sunderland being willing to guarantee the repayment of money advanced by Government for a harbour of refuge, 3735–3745——Consideration of the relative advantages of Sunderland and Hartlepool as sites for a harbour of refuge when the wind is from certain quarters, 3746–3768. 3776–3778——At present there is no harbour between Flamborough Head and the Fern Islands where a man-of-war could coal, 3779–3781——The proposed harbour at Sunderland would accommodate men-of-war, 3779.

Sinclair Bay. Expense in enclosing a harbour of refuge in Sinclair Bay, north of Wick, *Vetch* 478. 482, 483.

Size of Vessels. Greater want of harbours of refuge, according as finer and larger vessels are used, *Jackson* 2833, 2834.

Average size of vessels that entered and cleared the north-eastern ports in 1856, *App. p.* 270——Average size of ships for England, Scotland, Ireland, United Kingdom, and London, in the year 1856, *ib.* 271.

Skerries, The. Witness does not recollect to have seen any estimate for a refuge harbour at the Skerries, to the north-east coast of Ireland; but an outlay of, at the most, 150,000 *l.*, would provide a harbour there, *Washington* 205–212——Advantage if a harbour were made at the Skerries, near Portrush, *Vetch* 616. 802–806——Peculiar eligibility of the Islands of Skerries, off Portrush, for a harbour of refuge, *Fraser* 2512–2521——Nature of the shelter at the Skerries, on the Antrim coast; a pier there would be a great improvement, *Hoskyn* 2993–2998. 3002. 3017–3020. 3095.

See also *Bengore Headland*, *Clogher Head.*

South Coast. See *England, South Coast of.*

Spurn Head. Impression that all the works sanctioned at Spurn Head, are being carried out; object and value of these works, *Calver* 2086–2095. 2101–2105.

Stage System of Construction. Explanation of the system followed at Portland and Holyhead, in regard to the construction of the stage and the deposit of the stone; its advantages, *Coode* 1453–1461. 1470 *et seq.* 1588–1590——Wherever the stone is brought from the land side, the stage system is the most advantageous for discharging it, *ib.* 1481, 1482——Less accidental circumstances to calculate upon when the construction is by means of a stage, than when it is mason work, *ib.* 1590–1594——Facility, by means of a stage, for constructing detached breakwaters; that is, breakwaters not starting from the land, *ib.* 1602–1604——Summary of the advantages of construction by means of a stage, *ib.* 1610–1613——Less destruction of stage at Portland that at Holyhead, *ib.* 1643.

The system of construction by means of a fixed stage, is peculiarly advantageous, *Calver* 1844–1848. 1861——The stage plan should be adopted wherever practicable, *ib.* 1859–1861.

See also *Holyhead Harbour.* *Portland.*

Stonehaven. Stonehaven cannot be termed a harbour of refuge, *Calver* 1962, 1963.

Strangford Lough. Obstacle to Lough Strangford as a harbour of refuge, *Washington* 274–276.

Sulivan, Captain Bartholomew James, R.N. C.B. (Analysis of his Evidence.)——Is naval member of the Board of Trade; succeeded Captain Beechy, 971, 972——Is well acquainted with the coasts of Scotland and the south coast of England, 973–978——Absence of demand for any harbour of refuge on the west coast of Scotland, for sea-going ships, 979, 980——On the east coast a harbour is required at Wick, and there only, 981–1030——Great importance of Dunbar Harbour as a resort of fishing vessels, 982–998. 1244——Belief as to the willingness of the fishing trade at Dunbar to pay towards improved harbour accommodation, 992——Reference to the large contribution, by owners of fishing boats at Buckhaven, towards harbour accommodation, 992–1000.

Suggested construction of a fishery harbour at Bournemouth, to the south of Dunbar, to be carried out under the Fishery Board, 1001. 1039–1042——Ample convenience afforded by the Firth of Forth for sea-going vessels, 1002——At present the harbour at Wick is almost useless, 1003, 1004——The improvement proposed by the Wick Harbour Commissioners

Report, 1857—*continued.*

Sulivan, Captain Bartholomew James, R.N., C.B. (Analysis of his Evidence)—*continued.*

Commissioners or the Fishery Society, would be of vast service to fishing boats; but would not accomplish a safe refuge generally, 1005–1013. 1246–1250——Statement as to witness, when at Wick, having drawn a plan for a harbour of refuge, very nearly similar to the plan subsequently drawn by Captain Vetch, 1014–1019.

Considerable amount of shipping to which a harbour of refuge at Wick would be a great boon, 1020–1029——Peculiar natural facilities for the construction of the proposed harbour at Wick, 1030–1036. 1267——A harbour at Wick would be cheaper than at any other point in Scotland or England, 1030. 1267——Defective construction which led to the failure of Dunbar Harbour, 1033——Inferiority of Peterhead to Wick, as a site for a harbour of refuge, 1037, 1038.

Explanation relative to a certain Return, showing the immense coasting and foreign trade of the ports of Newcastle, Hartlepool, Sunderland, Shields, and Stockton, 1043–1058——Comparatively small value of the cargoes of colliers from these ports, 1057, 1058——Explanation relative to a Return showing the number of vessels wrecked or damaged, the value, and the number of lives lost, between Fern Islands and Flamborough Head, and between Flamborough Head and the Nore, in 1854, 1855, 1856, and the first six months of 1857; 1059–1067——Extent of the Baltic trade with the principal ports on the east coast, 1064, 1065.

Objections to a harbour of refuge on any part of the coast of Norfolk, 1068–1073——Judging from the charts, witness considers Tees Bay the only eligible point on the east coast for a harbour of refuge, 1074——Impression that Hartlepool is a better site than Redcar for a harbour, 1074–1076——On the south coast, Portland and Plymouth afford sufficient refuge, 1077–1080——On the coast of Cornwall, St. Ives seems the most eligible spot for a harbour of refuge, 1081–1084. 1423–1425——Advantage of St. Ives over Padstow Harbour, as a site for a harbour of refuge, 1083. 1426–1430.

As regards the west coast, Milford Haven is probably the finest harbour in England, 1085, 1086——Illustration, as shown by witness's personal experience in 1851, of the great want of a harbour of refuge for the Liverpool shipping, such refuge, however, being now almost provided by Holyhead Harbour, which will be invaluable to Liverpool, 1088, 1089. 1185–1189——The west coast of Ireland is well furnished with natural harbours, 1090–1092——On the east coast, the harbour of Wexford might be improved by dredging the channel, 1093, 1094.

Estimate of at least a million and a half as the amount of loss arising from shipwreck and casualty on the coasts of the United Kingdom, 1095–1106——Total wrecks and casualties for the last five years, 1097–1099——Average of 829 lives lost in each of the last five years, 1098——The wrecks and the loss of life were very low in 1856; 1098.

Explanation of the principle adopted by the Trinity House in levying tolls for lights or lighthouses; all vessels which pass, or are liable to pass, pay a toll, 1107–1115. 1125, 1126——Consideration of the mode in which passing tolls might be levied in the case of a harbour of refuge on the east coast, 1109 *et seq.*——Opinion that all vessels would willingly pay for the sake of a harbour, 1110, 1111. 1375–1377——Suggestions in detail, and examination thereon, in regard to the vessels which should pay a toll for a harbour at Hartlepool, and the mode of levying the toll in each case, 1117 *et seq.* 1173–1184. 1190–1194. 1290–1293. 1306, 1307. 1337–1368——The toll should not be charged merely for the actual use of the harbour, else captains would be deterred from making for it, 1142–1145. 1169, 1170. 1342–1345. 1378, 1379.

Belief that the toll, as giving a right to use harbours on the east coast would reduce the insurances so much, that vessels would save by the charge, 1151–1155. 1358, 1359. 1397–1401——Opinion that if the trade had long ago made the harbour, they would by this time have saved the money to have paid for it, 1155, 1156. 1360——Doubt as to the propriety of drawing any distinction between the rate of toll per ton to be paid by sailing colliers and steam colliers, 1157–1163. 1353–1355. 1364–1368.

Rates now paid at Wick Harbour for hauling up boats for the winter, 1164——Sum accumulated by the Wick Harbour Commissioners, 1165, 1166——Propriety of fishing vessels maintaining any harbour when completed for them, 1167——Check to harbours of refuge so long as insurance is resorted to, 1169. 1288, 1289——Witness, when at Wick, estimated that a fine harbour could be made there for 250,000 *l.*; 1171, 1172——Vessels which should pay passing tolls towards a harbour at Wick, 1182——Vessels not passing but occasionally using Wick Harbour, should pay a higher toll, 1182–1184.

Examination as to the probable number of wrecks which might have been prevented by harbours of refuge at Hartlepool and other places, 1195–1218——Increased number of collisions, through steamers running into sailing vessels, 1200–1203——Expediency of a system of lights for sailing vessels as well as for steamers, 1203.

Less claim and eligibility of Peterhead than of Wick, for a harbour of refuge, 1219–1228——Danger to breakwaters at Redcar and other places, from the shingle travelling

Reports, 1857—*continued.*

Sulivan, Captain Bartholomew James, R. N., C. B. (Analysis of his Evidence)—*continued.*

along the coast, 1229-1233——Danger to vessels if caught in a north-west gale off parts of the coast of Cornwall, 1234-1238——The south-west coast of Scotland is abundantly provided with natural harbours, 1239, 1240——Inexpediency of public outlay for a better harbour at Scrabster, 1241-1243.

National importance of a harbour of refuge at Wick, 1244, 1245. 1251-1256——Difficulty as regards the coaling of steamers going from the Thames to the Orkneys, 1251-1255——Advantage of Wick over Longhope, as a naval station in time of war, 1256-1258——Increased size and improved build of the fishing boats at Wick, during the last few years, 1259-1261——Number and value of the fishing boats from Wick and its neighbourhood, 1261——Further reference to witness's estimate of the cost of a harbour of refuge at Wick; confidence expressed in the correctness of lower estimates by others, 1262-1267——Advantage of Wick Harbour to the Baltic trade, 1268, 1269.

A harbour of refuge at the Fern Islands as well as at Wick, is not desirable, 1270-1272——There is not an adequate demand for a harbour of refuge off Beechy Head, now that Dover Harbour is being constructed, 1273, 1274——Objection to removing the rock and pyramid in the entrance to Falmouth Harbour, 1276-1278——Something should be done at Falmouth, by local funds, to deepen the inner harbour, 1278.

Anticipation that as regards the immensely increasing trade of Liverpool, some of it will be diverted to Milford, which as a port has great advantages, 1279. 1371-1373——Impression that a harbour of refuge is not required any where along the north coast of Ireland, 1284-1286——Inadequacy of the works at the mouth of the Tyne as a means of refuge to shipping, 1294, 1295——Many wrecks about the Land's End might have been saved by a harbour of refuge at St. Ives, 1296-1298——Further reference to Wexford harbour; steps being taken for dredging the channels, 1299-1305.

Further evidence relative to Buckhaven fishery harbour, and to the sum advanced towards it by the fishermen, 1309-1312——Willingness of the fishermen, in many places, to pay interest on loans by Government for making harbours, 1310——Practice of the Fishery Board in regard to advances in aid of local advances, 1311. 1314——Reference to the faultiness of the original plan in the case of Buckhaven Harbour, 1314-1318.

Further reference to the great want of a harbour of refuge in Tees Bay, on account of the numerous wrecks along that coast, 1319-1322——Examination to the effect that a refuge harbour at Hartlepool being required mainly for the passing trade, it is proper that the trade shouldpay towards such harbour, and that Government aid should be the less expected, because it would not be a national work like that at Portland or Dover, 1323-1341——Government should build the harbour at Hartlepool, and should be repaid by the trade, 1359-1363——Doubt whether at Kingstown, or any other harbour of refuge, tolls have yet been exacted, 1369, 1370. 1444-1447.

Improbability of Holyhead diverting much trade from Liverpool, 1372, 1373——Fairness in charging the Liverpool trade a small toll in regard to Holyhead Harbour, 1374-1384——Great advantage of a refuge at Holyhead for Liverpool shipping, 1381-1384——How far the construction of steamers for the coal trade on the east coast may affect the estimates of loss from shipwrecks on that coast, 1385-1393——Witness's suggestions relative to passing tolls for harbours of refuge are not the result of any deep consideration of the subject, 1394-1396.

Very large accommodation to be provided by Mr. Rendel's proposed works in Tees Bay, 1402-1406——Chief danger on the north-east coast when the wind is from the east or south-east, 1408——Danger to vessels running northwards, if they attempt in an east or north-east gale, to make for the Fern Islands, 1409-1413——All vessels proceeding from the north to the south, and taking refuge at Hartlepool, would be fairly included in the passing trade, 1416-1418——A harbour of refuge at Dungeness is not expedient, 1419, 1420——A fishery harbour at the Mouse Hole, near Penzance, would be very desirable, 1421, 1422.

Collisions do not often take place through want of harbours of refuge, 1432——In speaking of the national objects of harbours of refuge, witness had reference only to Government objects, such as the accommodation of ships of war, &c., 1433-1436——Witness further expresses his opinion that the class deriving most benefit from harbours of refuge, should pay the tolls, and that Government should not bear expense which legitimately should fall on the coasting trade, 1437-1443.

Sunderland. Number of vessels entering and leaving the port of Sunderland, *Washington* 245, 246——Except for local purposes a harbour is not expedient at Sunderland, *Calver* 1929-1931——Neither Hendon Bay nor the White Stones, near Sunderland, is an eligible locality for a harbour of refuge, *Jackson* 2780-2785——Money might be very advantageously expended upon Sunderland, *Cowen* 3354——Advantage of expenditure in improving the mouth of the River Wear, *Robinson* 3510-3512. 3656-3661.

Report, 1857—*continued.*

Sunderland—continued.

Frequency of wrecks and loss of life in the neighbourhood of Sunderland, *Simey* 3687——Excellent dock and good depth of water of Sunderland, *ib.* 3689——Ineligibility of the mouth of the Wear as a site for a harbour of refuge, *ib.* 3690-3693. 3715-3717——Evidence in favour of a harbour of refuge at Hendon Bay, a little south of the present sea outlet from Sunderland dock; explanation of a plan hereon, by Mr. Murray, *ib.* 3694 *et seq.*——Very considerable shipping trade of Sunderland, *ib.* 3698, 3699. 3713——Sunderland is the largest ship-building port in the kingdom, *ib.* 3698.

The estimated cost of Mr. Murray's harbour at Sunderland is 850,000 *l.*, *Simey* 3704-3772. 3775——The area proposed to be enclosed is from 600 to 700 acres; depth of this area, *ib.* 3719-3731. 3734——Consideration of the relative advantages of Sunderland and Hartlepool as sites for a harbour of refuge when the wind is from certain quarters, *ib.* 3746-3768. 3776-3778——The length of the breakwaters would be nearly 10,000 feet, *ib.* 3769——Facility for procuring the necessary material for the breakwaters, *ib.* 3770, 3771——The proposed harbour would accommodate men-of-war, *ib.* 3779.

For many years the necessity of a harbour of refuge on the north-east coast has been much discussed at Sunderland, *Alcock* 3785, 3786. 3799——There are two plans for a harbour of refuge at Sunderland, one by Mr. Meek and the other by Mr. Murray, *ib.* 3787, 3788——Particulars relative to the plan of Mr. Murray for a harbour at Hendon Bay, close to Sunderland; its advantages, *ib.* 3789-3798. 3801-3803——Statement relative to the trade of Sunderland; comparison with that of the Tyne and Tees, *ib.* 3821, 3822. 3834-3841. 3849——Belief as to the advantage of Sunderland over Hartlepool as the locality for a harbour, *ib.* 3831-3833. 3841-3844——Very large sum expended in the docks and harbour of Sunderland, *ib.* 3850——Impression that frigates can now coal at Sunderland docks, *ib.* 3851-3853.

Doubt as to the eligibility of Hendon Bay, near Sunderland, as a site for a harbour of refuge, *Heard* 4154-4157——Depth of water at the Wear, *ib.* 4158.

Witness delivers in a return showing the number of ships built at Sunderland and in the United Kingdom and colonies, and containing particulars of the trade of Sunderland as compared with other ports on the coast, *Alcock* 4340, 4341——This return shows that Sunderland builds nearly one-half of all the wooden ships built in the United Kingdom, *ib.* 4341——Further evidence in support of a harbour of refuge at Sunderland; character of the ground to be enclosed, in regard to anchorage, *ib.* 4342-4352.

Swansea Bay. Doubt as to the necessity of a harbour of refuge in Swansea Bay, *Washington* 349-351.

T.

Tay, The. Obstacle to improving the entrance of the Tay, *Washington* 357, 358——Excellent refuge now afforded by the mouth of the Tay, *Calver* 1957, 1958.

Tees Bay. Tees Bay is the focus of wrecks on the east coast of England, *Washington* 106-107. 186-188. 306. 320——With respect to the saving of wrecks, Tees Bay is the most important point along the coasts for a harbour of refuge, *Washington* 320. 450; *Calver* 1881 *et seq.* 2042, 2043——South of Wick, the next most important point for a harbour of refuge, is in the vicinity of Hartlepool and the Tees' Mouth, *Vetch* 531. 544. 561-565——Judging from the wreck charts, witness considers Tees Bay the only eligible point on the east coast for a harbour of refuge, *Sulivan* 1074. 1319-1322.

See also *Hartlepool.* *Tees' Mouth.*

Tees' Mouth. Advantage if, in addition to a breakwater at Hartlepool, there were a breakwater across the sandbank at the mouth of the Tees for the protection more especially of local shipping, *Vetch* 565-577——The breakwater on the north side of the Tees should not supersede a harbour of refuge on the coast, *ib.* 769-778——The proposed breakwater at Tees' Mouth would hardly be useful for shipping generally, *ib.* 922-929.

In connexion with a breakwater at Hartlepool, witness also proposes one at the Tees' Mouth, so as to divert the course of the channel more to the east, *Dunning* 4197——The plan of the late Mr. Bald for a breakwater at the Tees' Mouth would answer in all weathers, *ib.* 4202-4204.

Witness proposes to construct a pier over the north side of the entrance to the Tees, the effect of which will be to throw a greater scour upon the bar, and thus to increase its depth to fifteen or twenty feet at low-water spring tides, *Fowler* 4293-4298. 4300. 4303-4306——Computation that the proposed pier or harbour of refuge would be completed in eleven months, *ib.* 4298. 4331-4338——Increased accommodation to be given to shipping by the proposed pier, *ib.* 4298. 4301, 4302. 4307, 4308——Estimate of 70,000 *l.* as the

Report, 1857—*continued.*

Tees' Mouth—continued.

cost of the pier or breakwater; this should fall on Government, *Fowler* 4298. 4313–4317. 4330—— Estimate of 11,000 *l.* to be defrayed locally, as the cost of a guiding wall to be built in conjunction with the breakwater, *ib.* 4299. 4310.

Instances of increased depth of water through means of works similar to that proposed by witness, *Fowler* 4303–4305. 4328–4338——The guiding wall will be 15,000 feet long, and constructed of slag; its object, *ib.* 4311, 4312. 4318–4320. 4323–4327——Length of the pier and quantity of slag required in its construction, *ib.* 4314——The pier should be first constructed, *ib.* 4318–4320——Favour given by the Admiralty and several practical persons to the proposed pier, *ib.* 4321, 4322. 4327.

Objections in Mr. Calver's report, of 6 December 1856, to the mouth of the Tees as the locality for a harbour of refuge, *App. p.* 248.

Report of Mr. Fowler to the Tees Conservancy Commissioners, dated 17 July 1857, in support of his plan of harbour at the Tees' Mouth, *App. p.* 278, 279.

See also *Hartlepool.*

Tidal Harbours. Impolicy of making harbours of refuge out of tidal harbours, as at the Tyne, &c., where there is an insufficient depth of water, *Calver* 2318–2327. 2394. 2406.

Exception taken to the term "dangerous decoys" as applied by Mr. Calver to existing tidal harbours on the east coast, *Cowen* 3355–3357——Better expenditure of public money in improving the existing tidal harbours than in making new harbours, *Robinson* 3550. 3654, 3655.

Term "dangerous decoys" applied by Mr. Calver in his report of 6 December 1856 to the several bar harbours on the north-east coast, *App. p.* 246, 247.

See also *Trading Harbours.* *Tyne, The (or Tynemouth).* *Waterford Harbour.*

Tolls:

1. *Passing Tolls.*
2. *Refuge Tolls.*
3. *Composition Tolls.*

1. *Passing Tolls:*

Suggestion that light dues or passing tolls be resorted to as one means of forming Hartlepool or other harbours of refuge, *Washington* 378–381——Consideration of the mode in which passing tolls might be levied in the case of a harbour of refuge on the east coast, *Sulivan* 1109 *et seq.*——Opinion that all vessels would pay for the sake of a harbour, *ib.* 1110, 1111. 1375–1377——Witness would exempt vessels that could not be said directly to pass the port, but would charge them much higher than other vessels if they used the harbour, *ib.* 1117. 1124. 1127 *et seq.* 1191–1194. 1292, 1293——The toll on passing vessels should be uniform and of small amount, such as a penny per ton, and there should be no extra toll for entering the harbour, *ib.* 1117. 1142, 1143. 1170. 1307. 1341–1345. 1351, 1352.

Doubt as to the propriety of drawing any distinction between the rate of toll per ton to be paid by sailing colliers and steam colliers, *Sulivan* 1157–1163. 1353–1355. 1364–1368—— Doubt whether at Kingstown, or any other harbour of refuge, tolls have yet been exacted, *ib.* 1369, 1370. 1444–1447——Witness's suggestions, relative to passing tolls for harbours of refuge, are not the result of any deep consideration of the subject, *ib.* 1394–1396—— All vessels proceeding from the north to the south, and taking refuge at Hartlepool, would be fairly included in the passing trade, *ib.* 1416–1418.

General objection of the shipping trade to a system of passing tolls, *Jackson* 2675–2676. 2680. 2751. 2764–2767. 2792. 2812–2814; *Cowen* 3384——Strong objection to a system of passing tolls as a means of defraying the cost of a harbour of refuge, *Cowen* 3383–3399. 3425–3475. 3479, 3480——The time has come when passing tolls ought to cease altogether, *ib.* 3383——Objection to a system of passing tolls, *Simey* 3710–3711; *Alcock* 3806–3820. 3825–3830——The shipping interest would never consent to passing tolls, *Alcock* 3806–3820. 3829, 3830——Grounds for objecting to passing tolls as a means of defraying the expense of a harbour of refuge, *Robinson* 3854, 3855. 3886–3889.

A small toll levied on all ships passing a harbour of refuge would be preferable to a larger toll being levied for the use of the harbour, *Wherland* 3957–3959; *Bourne* 4052–4058, 4068–4072.

2. *Refuge Tolls:*

The toll should not be charged merely for the actual use of the harbour, else captains would be deterred from making use of it, *Sulivan* 1142–1145. 1169, 1170. 1342–1345. 1378, 1379.

Report, 1857—*continued.*

Tolls—continued.

2. *Refuge Tolls*——continued.

It would probably be the fairer plan to make each vessel pay a toll that uses the harbour, *Calver* 2084. 2193, 2194. 2304——Doubt as to a payment for the use of the harbour deterring vessels in danger from running for it, *ib.* 2085. 2195, 2196. 2305——Evidence in favour of refuge tolls, that is, tolls for the actual use of the harbour, rather than of passing tolls, *Jackson* 2673-2680. 2748-2751. 2764-2770. 2792-2807. 2814——Belief that the masters of colliers, or other vessels, would not be deterred from using the harbour by the condition of having to pay for it, *Jackson* 2675. 2678, 2679. 2686, 2687. 2807-2813. 3842, 2843; *Alcock* 3807, 3808. 3826-3828.

A charge upon vessels for using the harbour as a refuge would diminish the value of the harbour, but is the best mode of levying an income if necessary, *Cowen* 3298–3300. 3469-3475. 3479, 3480——A toll for the use of the harbour will prevent its extensive use, *ib.* 3298, 3299. 3386——Approval of a toll for the use of a harbour of refuge, as the only toll that can be levied without objection, *Simley* 3708, 3709. 3712, 3728-3730——Approval of a toll for the actual use of a harbour of refuge, *Alcock* 3805-3808. 3825-3830.

The shipping interest would not object to pay a toll for the actual use of the harbour, *Robinson* 2856, 2157——Unwillingness of captains to use harbours of refuge if compelled to pay tolls, unless they are very light, *Wherland* 3933-3935. 4024-4026——Willingness of captains to pay a toll for a refuge during a gale, *Bourne* 4070–4072. 4108-4110. 4082-4088.

3. *Composition Tolls:*

Shipowners might be allowed to compound, by an annual payment, for the use of the proposed harbour at Hartlepool, *Jackson* 2766-2770.

See also *Hartlepool*, 4. *Insurance. Light Dues. Tyne, The (or Tynemouth)*, 6. *Wick* 7.

Towan Head. Objection to a scheme for a large harbour at Towan Head, *Vetch* 594, 595. 863–865.

Remarks in a paper, by Captain Vetch, as to the inexpediency of the extensive and fine harbour proposed by Mr. Bald, *App. p.* 254.

Trade or Traffic. Absence of correct data for calculating the exact number of vessels that pass along different points of the coast, *Washington* 242–246——Estimate that about 150,000 vessels a year pass along the east coast, *ib.* 244——Very important character of the shipping trade, of the ports between the Tyne and the Tees, *Vetch* 930–932——Explanation relative to a certain return, showing the immense coasting and foreign trade of the ports of Newcastle, Hartlepool, Sunderland, Shields, and Stockton, *Sulivan* 1043-1058, 1431——Comparatively small value of the cargoes of colliers from these ports, *ib.* 1057, 1058.

Character and extent of the coasting trade on the east coast, and nature of the casualties considered in connexion with the claim of that coast for a harbour of refuge, *Calver* 2287–2293. 2342–2369. 2402–2409——Consideration of the shipping trade of the east coast, and of its claims for a harbour of refuge, *ib.* 2338-2341. 2370-2375——Statement relative to the trade of the east coast, with particulars as to the tonnage exports of those ports for whose ships a harbour of refuge at Hartlepool would be available, *Jackson* 2681–2694. 2789, 2790. 2824–2828——Increased trade along the east coast if there were a harbour at Hartlepool as proposed, *ib.* 2811——The declared value of goods at the custom-house is not a proper criterion of the actual value, *Cowen* 3360.

Shipping entered inwards and outwards with cargoes in the year 1856, from the north-east ports between Flamborough Head and Berwick-upon-Tweed inclusive, a distance of 120 miles sea coast; excluding all ships in ballast which are not entered in the custom-house returns, but for refuge harbour purposes, must be equally considered, and may be estimated to be not less than three-fourths more than the laden vessels, *App. p.* 261.

Shipping and exports of coals, and of declared value to Her Majesty's Customs of merchandise goods, exclusive of coal, from certain ports between the River Tyne and the River Tees inclusive, a distance of less than twenty-five miles of sea coast, for the year 1856, *App. p.* 261, 262.

Shipping entered inwards and outwards, with cargoes, in the year 1856, at the entire ports of the United Kingdom, of the Isle of Man, and of the Channel Islands, *App. p* 264.

Registered ships and tonnage of the north-east ports, including steam-vessels, for the years 1855–56, *App. p.* 269——Ships and tonnage cleared outwards from the north-eastern ports, for the years 1855–56, *ib.*——Number and amount of British and foreign ships, and tows, that cleared from the north-eastern ports in the year 1856, *ib.* 270——Customs duties paid in the north-eastern ports, for the year ended 31 March 1856, *ib.*

Report, 1857—*continued.*

Trade Traffic—continued.

Total number and amount of British and foreign ships and tonnage entering and clearing England, Scotland, Ireland, &c., 1856, *App. p.* 271.

See also *Baltic Trade. Hartlepool*, 3. *Sunderland. Tyne, The (or Tynemouth)*, 1.

Trading Harbours. Advantage generally of expenditure in improving the small trading harbours, *Washington* 149, 150. 362——The small trading harbours might be improved by public grants in aid of local funds, *ib.* 362, 363——Immense improvement of harbours in Scotland by the Government grant of 2,500 *l.* a year, under the Fishery Act, *ib.* 363——Some of the harbours on the west and south-west coasts require improvement, but a new harbour of refuge is not required, *Hosken* 2853, 2854——General endeavour of captains when caught in a gale to make for the port of their destination, *Cowen* 3294, 3297; *Robinson* 3547-3549. 3859-3861; *Alcock* 3823. 3824; *Heard* 4143-4145——Although a harbour of refuge is exceedingly desirable on the north-east coast, an outlay of public money would be much better applied in improving the existing harbours, *Cowen* 3294-3298. 3342-3345. 3353-3358——Greater prevention of wrecks by improving the existing harbours than by constructing one large harbour of refuge, *Robinson* 3858-3861. 3894-3896.——*See* also *Tidal Harbours.*

Tuskar. Between Wexford and Waterford, or in the neighbourhood of Tuskar, Greenore Point is the most suitable locality for a refuge for vessels, but even it is objectionable, *Fraser* 2542-2553. 2567-2569——A harbour of refuge, either at Greenore Point or Carnsore Point, south of Wexford, would be a great advantage, on account of the dangerous reefs near Tuskar, *Hoskyn* 3049-3054——Danger of the navigation in the vicinity of Tuskar, *Wherland* 3924-3928——Objection to a harbour within Tuskar, about Greenore, or Carnsore Point, *Bourne* 4111-4118.

TYNE, THE (OR TYNE-MOUTH):

1. *Large Trade of the Tyne.*
2. *Numerous Wrecks off the Mouth of the River.*
3. *Eligibility of the Mouth of the Tyne as the Site for a Harbour of Refuge.*
4. *Works contemplated; their Advantage; Progress already made.*
5. *Cost of the Works.*
6. *Means of defraying the Cost.*
7. *Tyne Improvement Commission.*
8. *Question as to the Eligibility of the Site, or of the proposed Works.*

1. *Large Trade of the Tyne:*

Considerable number of vessels leaving the Tyne and Wear, *Washington* 188. 195, 196. 244-246——Particulars relative to the trade of the Tyne; it is nearly equal to the aggregate trade of Sunderland, Hartlepool, and the Tees, *Cowen* 3261, 3281-3288. 3308-3312. 3339. 3360, 3361——There have frequently been from 1,200 to 1,500 vessels in the harbour, some of them of the largest class, *ib.* 3274. 3289. 3327-3330——Course of vessels on leaving the Tyne; the majority of vessels from the Tyne, the Wear or Tees go to the south, *Robinson* 3557-3569——The American vessels from the Tyne chiefly go north by the Pentland Firth, *ib.* 3560-3564. 3606, 3607——Average size of the vessels frequenting the Tyne, *ib.* 3598-3601.

2. *Numerous Wrecks off the Mouth of the River:*

Considerable number of wrecks and casualties opposite the Tyne, *Washington* 188-192; *Cowen* 3217-3219. 3339. 3421-3423; *Heard* 4137. 4155.

3. *Eligibility of the Mouth of the Tyne as the Site for a Harbour of Refuge:*

Summary of advantages possessed by the mouth of the Tyne over any other place on the north-east coast for a harbour of refuge, *Cowan* 3257 *et seq.*, 3290-3294, 3301, 3302. 3306. 3483——Considerable refuge now given to vessels passing along the east coast by the existing Tyne harbour, *Cowan* 3257-3264. 3274, 3275. 3281-3289. 3327-3330. 3373-3376. 3400-3405——Peculiar advantage of the Tyne as a locality for the coaling of men-of-war; good character of its steam coal, *ib.* 3306. 3340, 3341, 3359.

Very good shelter now afforded by the Tyne, though a bar harbour, *Robinson* 3498-3501. 3576-3582——Evidence in favour of a harbour of refuge at the Tyne as a far more eligible locality than any other on the north-east coast, *ib.* 3573 *et seq.* 3662-3676——Refuge in a harbour at the Tyne as well as in one at Hartlepool, in the case of vessels taken in a gale to the south, *ib.* 3674-3676——Considerable extent to which wrecks south of the Tyne might be prevented if there were a harbour of refuge at the Tyne, *ib.* 3890-3894.

Brief statement of facts in favour of the construction of a harbour of refuge at the river Tyne by the deputations from the Tyne Improvement Commissioners, and the several corporations of Newcastle-upon-Tyne, Gateshead, South Shields, and Tynemouth, the

Report, 1857—*continued.*

TYNE, THE (OR TYNE-MOUTH)—continued.

3. *Eligibility of the Mouth of the Tyne as a Site for a Harbour, &c.—continued.*

the Newcastle-upon-Tyne, Shields, and Gateshead Chamber of Commerce, and the Shipowners Societies of Tynemouth and South Shields, *App. p.* 271, 272——Table of statistics in support of the foregoing "Statement of Facts," *ib.* 273.

4. *Works contemplated; their Advantage; Progress already made.*

Contemplated construction of two piers, as authorised by Act of Parliament, whereby the bar will be improved, and the danger arising from the rocky coast on either side obviated, *Cowen* 3220-3232. 3370——Particulars as to the progress already made with the works, and the mode of construction adopted, *ib.* 3251-3256. 3325. 3365, 3367——Improvement already effected in the bar by the increased scour consequent upon the works, though they have not yet gone beyond the bar, *ib.* 3252, 3253. 3323, 3324 3362-3364——Consideration of the extent and character of the shelter to be afforded by the proposed piers, *ib.* 3265-3271. 3289. 3303 *et seq.* 3409-3420——Refuge to be afforded in gales from the north-east, east, and south-east, *ib.* 3272, 3273. 3313-3322. 3370-3376. 3484-3486.

Witness delivers in the Act of Parliament for the formation of the piers, *Cowen* 3276——Also a report by Mr. Walker, the engineer for the works, *ib.* 3276-3278——It has been estimated that the works might be completed in from five to seven years, *ib.* 3279——Depth of the entrance to the proposed harbour, and size of the vessels which would be enabled to make use of it, *ib.* 3303-3307. 3331-3338. 3377-3380. 3409-3413——Facility for procuring an ample supply of material for the piers, *ib.* 3365-3367.

A depth of thirty feet at low water may be attained by taking the piers further out, but the expense would be more than should be provided by local tolls, *Cowen* 3378-3380——There will be an area to contain two thousand vessels by mooring, *ib.* 3409. 3418-3420——Deeper water in the harbour according as the piers are carried further out, *ib.* 3411-3415——If the sands do not disappear dredging will be restorted to, *ib.* 3414——There is not likely to be much accumulation of sand or shoal after the completion of the piers, *ib.* 3416, 3417.

Large capacity for stowage and accommodation, *Robinson* 3573, 3574. 3663——Depth of water at the entrance to the proposed harbour; depth at the present time, *ib.* 3575-3594——Increased depth through the works now in progress; greater increase as the proposed piers are completed, *ib.* 3594-3597——Improbability of a silting up of the proposed harbour, *ib.* 3677-3681——About two thousand ships could be accommodated by the harbour, *ib.* 3683——Ample accommodation in the harbour when the gaes are from the south-east, *ib.* 3876.

Report of Mr. James Walker, addressed to the Tyn Impr vement Commissioners, dated 15 November 1853, containing information and suggestions in detail relative to a harbour of refuge at the mouth of the Tyne, *App. p.* 264-269.

5. *Cost of the Works:*

Estimate of the cost of the piers as authorised by the Admiralty; further cost estimated if the piers be carried out into deeper water, *Cowen* 3280. 3368, 3369. 3406-3408. 3476-3478——The present contract is 166,000 *l.* *ib.* 3368, 3369——Up to the present moment 46,000 *l.* has been expended on the works, *ib.* 3407——The harbour is capable of being improved at less cost than any other harbour along the coast, *ib.* 3483——The depth at the bar can be increased at less cost by half than a harbour can be formed at any other place, *Robinson* 3574-3663.

6. *Means of defraying the Cost:*

Explanation as to the tonnage-rate upon vessels leaving the harbour, whereby it is contemplated to raise money for the construction and repair of the piers, the rate ultimately to cease, *Cowen* 3233-3250. 3300——Extended accommodation at the Tyne by means of public money should be free to all ships using the harbour as a refuge, *ib.* 3298-3300. 3482——Reference to an offer by the Tyne Commissioners to provide a sum equal to any advance by Government towards the proposed harbour, *ib.* 3481, 3482——Present practice at the Tyne in regard to the tolls paid by vessels; practice contemplated in the event of a public grant for a harbour of refuge there, *Robinson* 3877-3884.

7. *Tyne Improvement Commission:*

Witness is chairman of the Tyne Improvement Commissioners, *Cowen* 3203——Appointment of the Commission in 1850; its constitution and duties, *ib.* 3204. 3213-3216——Boundaries to which the jurisdiction of the Commission extends, *ib.* 3205-3212.

8. *Question as to the Eligibility of the Site, or of the proposed Works:*

The large harbour in progress at the mouth of the Tyne will be very useful, but will not obviate the necessity of a harbour of refuge in Tees Bay, *Washington* 188-199——Heavy and dangerous swell upon the bar of the Tyne after a gale of wind, *Vetch* 774——

Report, 1857—*continued.*

TYNE, THE (OR TYNE-MOUTH)—continued.

8. *Question as to the Eligibility of the Site, &c.*—continued.

Reference to the works going on at the mouth of the Tyne; advantage anticipated therefrom, *Vetch* 779–782. 933–936——Inadequacy of the works at the mouth of the Tyne as a means of refuge to shipping, *Sulivan* 1294, 1295.

Remarks relative to the works at the mouth of the Tyne, with a view to concentrate the scour of the river; probable effect, *Calver* 1920–1928. 2076–2078. 2281–2284. 2318–2327——The outlet of a river like the Tyne is by no means suitable for being formed into a harbour of refuge, *ib.* 1928. 2318–2327. 2406.

Effect of the works at the mouth of the Tyne; doubt as to their improving the depth over the bar, *Heard* 4180–4185——Disadvantage of vessels having to go some distance up a river to anchor as at the Tyne, *ib.* 4182, 4183. 4186, 4187——Difficulty occasionally in getting out of the Tyne without the use of steamage, *ib.* 4188–4191——Reason why a harbour of refuge should be constructed in Tees Bay rather than in the Tyne, *Fowler* 4308.

Objections in Mr. Calver's report of 6th December 1856, to a harbour of refuge at the Tyne, on account of the bar, *App. p.* 247.

Remarks by Captain Vetch upon the piers now being constructed at Tynemouth, and to their effect in deepening the channel, *App. p.* 253.

See also *Commission of Inquiry. Cost. England, East and North-east Coasts of. Hartlepool*, 1. 8. *Tidal Harbours.*

U.

Use of Harbours of Refuge. Tendency of captains, when caught in a gale, to make for their own ports, and not to use a harbour of refuge at all, *Cowen* 3294. 3297; *Robinson* 3547–3549. 3859–3861; *Alcock* 3823, 3824; *Heard* 4143–4145——Reluctance of captains to enter harbours at all, unless driven to do so, *Bourne* 4073–4080.

See also *Tolls*, 2.

V.

Vetch, Captain James, R.E., F.R.S. (Analysis of his Evidence.)—Has for the last ten years been conservator of the tidal waters of the United Kingdom, and has had the charge, under the Admiralty, of the Harbour Department, 467, 468——Is from practical experience well acquainted with the coasts of the United Kingdom, 469–471.

As regards the Shetland Islands and the Orkneys, the natural harbours of those islands are very good, and the wrecks arising from storms and tidal currents cannot be obviated by harbours of refuge, 472–476——A harbour of refuge is not expedient at any point north of Wick, 477, 478——Evidence in detail in favour of a harbour of refuge at Wick, 478 *et seq.* 725–739. 892–896.

Strong objection to the proposition of the Fishery Society, by which it is intended merely to throw out a pier from the south shore to reach nearly half way across Wick Bay, 494–509. 725–729——Explanation relative to witness's scheme for a harbour of refuge at Wick; its advantages, 510–529. 647–653. 739——Plan of construction of the harbour as regards the piers; material to be employed, 511–516. 521. 649–651. 785–788——Explanation relative to the estimate by Mr. Coode, Admiralty engineer at Portland, of the cost of the proposed harbour at Wick; total cost of 175,000*l.* or 186,000*l.*, according to the depth of the upright wall, 516–524.

South of Wick, the next most important point for a harbour of refuge, is in the vicinity of Hartlepool and the Tees' Mouth, 531–534. 561–565——Advantage consequent on the improvement of Aberdeen Harbour, 532–535. 897–899——Advantage if some 30,000*l.* could be applied towards providing shelter at Elie, in the Firth of Forth, 536. 539——Greater advantage of an outlay at Dunbar than at Elie, 536–543. 680——Suggestions for the formation of a detached breakwater near Hartlepool, as at Plymouth; its advantage, 545–560. 654–657. 673–679. 681–684——Advantage, if in addition to a breakwater at Hartlepool, there were a breakwater across the sandbank at the mouth of the Tees, for the protection more especially of local shipping, 565–577.

Between Flamborough Head and Dover there is no great necessity for a harbour of refuge, 578–581——Along the south coast a harbour is not needed, save at the Land's End, 582–585——Some small works would be useful at Penzance, 583–585——At St. Ives a harbour of refuge would be extremely useful; suggestions hereon, 585–594——Objection to a scheme for a large harbour at Towan Head, 594, 595. 863–865——From St. Ives to Holyhead, and from Holyhead northward, a harbour of refuge is not expedient, 596–599.

As

Report, 1857—*continued*.

Vetch, Captain James, R.E., F.R.S. (Analysis of his Evidence)—*continued*.

As regards the Isle of Man, a public harbour of refuge is not very desirable, but a breakwater pier at Douglas would be very useful, 600, 601. 606–610——An expenditure by Government on Port Erin, Isle of Man, for local purposes, would be a great boon to the island, 602–605——On the west coast of Scotland, the light of Wigton Bay might be made available for a harbour of refuge, but the coast generally is well provided with natural harbours, 606.

With regard to the west coast of Ireland witness has not much experience, but it comprises several very fine natural harbours, 612. 645, 646——With respect to the north coast of Ireland, the erection of two piers at the mouth of the River Bann would be very useful for local purposes, 613–615——Advantage if a harbour were made at the Skerries, near Portrush, 616. 802–806——Advantage if the bar at the mouth of Carlingford Lock were dredged and broken up, 617–621——The works at Kingstown have been eminently successful as a shelter for shipping, 622.

Great difficulty of improving Wexford Harbour by attempting a direct removal of the shifting sand banks at the entrance; suggestion hereon that a channel be cut through the Gull Bar, whereby a powerful scour would be created which would be more effectual than any dredging apparatus, 623–634. 685–707. 807–811——Suggested removal of the hard shingle or sand bank at the mouth of Waterford Harbour; this might be done for less than 20,000 *l*.; 635–638. 708–714——Extent of benefit to be conferred on shipping by improving Waterford Harbour as suggested, 639–642. 715–724——Between Waterford and Cork a harbour of refuge is not easily available at any point, 643, 644. 719, 720.

Facility for useful improvement at Falmouth Harbour without much expense, 658–661——Further reference to the means of providing shelter for shipping in Douglas Bay, Isle of Man, 662–664——Considerable benefit to shipping if a harbour of refuge could be constructed at Peterhead as well as at Wick; natural difficulties in the case of Peterhead, 665–672. 791, 792——Advantage of a detached breakwater running parallel with the shore at Hartlepool rather than of one projecting from the shore, 674–677. 752–758. 796–799——Advantage of the proposed breakwater at Hartlepool over the works proposed by Mr. Rendel, 681–684.

Doubt as to the practicability of fishing vessels at Wick landing their cargoes on parts of the coast, 730–732——A harbour at Wick would probably accommodate fishing boats of an aggregate value of 150,000 *l*.; 737–739——Except at Cromarty there is not at present any place on the north-east coast of Scotland where a steamer can coal, 740–744——Witness does not know any place between Tees' Mouth and the Firth of Forth available for a harbour of refuge, 745–751.

Further evidence in favour of a detached breakwater in Tees Bay; it would be a protection not only to Hartlepool Harbour but a means of refuge to all vessels passing by that coast, 752–784. 907–939——Pre-eminent claim of the line of coast between St. Abb's Head and Flamborough Head to a grant of public money in aid of a harbour of refuge at Hartlepool, 759–768. 783, 784. 930–932——The breakwater on the north side of the Tees should not supersede a harbour of refuge on the coast, 769–778——Reference to works going on at the mouth of the Tyne; advantage anticipated therefrom, 779–782. 933–936.

Further reference to Dunbar Harbour; best means of improving it, 793–795. 866–869——Further evidence in favour of a harbour of refuge at St. Ives instead of at Penzance, or any other place along that coast, 809, 801. 852–862. 870–891. 954–959. 969, 970——Preference given to upright walls over vertical walls in the construction of breakwaters, 812–816——Use of upright walls in the case of Dover, 813. 818——Obstacle to a harbour of refuge at Dungeness, 817.

How far there is any special demand for a harbour of refuge between Portsmouth and Dover, 819–834——Remarks as to a harbour having some years ago been recommended at Beachy Head, 835–841——Class of vessels and character of their captains along the south coast, 823–829——Class of vessels and character of the masters on the east coast adverted to in connexion with the numerous wrecks upon that coast, 842–851. 930–932——Further statement relative to the demand for a harbour at Wick, and the expediency of a large expenditure, 900–906.

The proposed breakwater at Tees' Mouth would hardly be useful for shipping generally, 922–929——Very important character of the shipping trade of the ports between the Tyne and the Tees, 930–932——Danger along the north-east coast generally to coasting vessels, 937–939——Doubt as to a large harbour on the north-east coast being much used by Her Majesty's ships-of-war, 940–942.

It is many years ago since witness inspected Wick Bay, 943–945——In 1846 witness narrowly examined Peterhead, 946, 947——He is well acquainted with Hartlepool and the neighbourhood, 948–950——Facilities for procuring the material required in the construction of the breakwater near Hartlepool, 951–953——Witness's evidence should be accepted merely in an engineering point of view, 960–962——Between the mouths of the Tyne and Tees there is no locality so suitable for a harbour of refuge as that near Hartlepool and Redcar, 963–968.

Report, 1857—*continued.*

W.

Walker, James. Report of Mr. James Walker, civil engineer, &c., dated 15th November 1853, relative to a harbour of refuge at the mouth of the Tyne, *App. p.* 264–269.

Washington, Captain John, R.N., F.R.S. (Analysis of his Evidence.)—Is hydrographer of the Navy; has since 1841 held several appointments which have rendered him familiar with the whole of the coasts of the United Kingdom, 1–7——Has prepared a wreck chart of the British isles, showing the whole of the wrecks that have occurred for the last five years, 8–10——The total number of casualties in five years has been 5,128, the total losses being 244 by collision, and 1,940 by stranding, 12–21.

Estimated loss of a million and a quarter in each year for the wrecks, and a quarter of a million for the other casualties, 22–29——Loss of life by shipwreck in each of the last five years; average of 830 lives yearly, 30–32——Gradual diminution in the lives lost; reasons assigned, 32, 33——Excellent working of the Mercantile Marine Act, 33–35. 310–312.

Occurrence of casualties on that part of the coast of Scotland, chiefly from the Firth of Forth to the Orkneys, 36——The wreck chart referred to by witness includes casualties to decked vessels only, omitting those to fishing boats, &c., 36–38——Urgent want of a proper harbour of refuge on the north-east coast of Scotland, 39–47——There are numerous natural harbours in the Orkneys and Shetland, 40——Evidence in favour of a harbour of refuge in Wick Bay, 40–84. 215–218. 236–241, 313, 314. 321–331——Unavailableness of the harbour at Pulteney Town as a refuge harbour for Wick, 46, 47——Advantages of the larger harbour for Wick, as proposed by the Admiralty, over the more limited plan of the Wick Harbour Commissioners; estimated cost of each, 48–73. 265. 268. 313, 314. 328–331.

Along the east coast of Scotland a good many wrecks occur, but hardly enough to warrant a large harbour of refuge at any particular spot, 83——Reference to a proposal by Mr. David Stephenson for a harbour of refuge at Peterhead, at an estimated cost of 228,000 *l.*; 84–87——Reference to harbours proposed on the Firth of Forth; the Firth itself is a good natural harbour, and witness does not recommend a refuge harbour along the coast, 88–100.

Great deficiency of proper harbour accommodation along the 150 miles of coast from St. Abb's Head to Flamborough Head, 101–110. 301–308. 316, 317——Tees Bay is the focus of wrecks on the east coast of England, 106, 107. 186–188. 306. 320——Of the entire number of wrecks on the coasts of the United Kingdom, and within its seas, fully one quarter occur between St. Abb's Head and Flamborough Head, 108–110——One-half of the entire wrecks occur on the east coast altogether, 108–110.

Evidence in favour of a harbour of refuge at Hartlepool, in Tees Bay, 111–115. 186–199. 301–317. 320. 450–453——Remarks on a plan of the late Mr. Rendel for a harbour at Hartlepool, at an estimated cost of 800,000 *l.*; 111. 367. 377——A harbour of refuge in Bridlington Bay would be very useful, but is not nearly so pressing as one in Tees Bay, 116–120——Mention of several ports or harbours between Bridlington Bay and Ramsgate, as already providing very good accommodation and refuge for shipping, 121–128.

Absence of pressing demand for further harbours of refuge along the south coast, 129–136—— Want of a harbour of refuge near the Land's End, 136——Advantage of a small outlay on Falmouth Harbour, more especially if the packets move further westward, 136–140. 219–225. 332–336——Around the Land's End, St. Ives is the most eligible point for a harbour of refuge, and would afford most useful shelter, 140–147. 347, 348——From St. Ives Bay to the Solway Firth any large additional harbour of refuge is not necessary, 148–151——Advantage generally of expenditure in improving the small trading harbours, 149, 150. 362.

Great value of Holyhead Harbour; approval of the expenditure for its extension, 151, 152——An outlay of about 30,000 *l.* in erecting a breakwater at Douglas, Isle of Man, would be exceedingly beneficial, 153–156. 260, 261——The numerous natural harbours on the west coast of Scotland obviate the necessity of any harbour of refuge there, 157–164——Sufficient natural harbours on the west coast of Ireland, 158——Adequate harbour accommodation on the north coast of Ireland, 159–162. 273.

Advantage if Ardglass Harbour, on the north-east coast of Ireland, were improved, 162–166——Great benefit to be derived from a small outlay on Carlingford Bay, 167–171. 182. 200–204——Uselessness comparatively of Howth Harbour, though it has been very expensive, 172, 173——Kingstown Harbour is very useful, 174——An outlay of about 40,000 *l.* in improving the entrance to Wexford Harbour is greatly required, 175–181——Numerous wrecks along the coast near Wexford, 177. 282–284——At Waterford an expenditure of about 20,000 *l.* would accomplish very great service to shipping, 182, 183. 298——Along the south and south-west coast, the Cove of Cork and Bantry afford excellent shelter, 184, 185.

In

Report, 1857—*continued.*

Washington, Captain John, R.N., F.R.S. (Analysis of his Evidence)—*continued.*

In deciding upon the exact site of a harbour in Tees Bay, Redcar must be very carefully examined, 185. 315——Large number of casualties at the mouth of the Tyne, 188. 192——The large harbour in progress at the mouth of the Tyne will be very useful, but will not obviate the necessity of a harbour of refuge in Tees Bay, 188-199——Large number of vessels leaving the Tyne and Wear, 188. 195, 196. 244-246——Witness does not recollect to have seen any estimate for a refuge harbour at the Skerries, on the north-east coast of Ireland, but an outlay of at the most 150,000 *l.*, would provide a harbour there, 205-212.

The greater number of collisions of late years is attributable to the great increase of traffic and competition, 213——The collisions respectively of steam-vessels and sailing vessels can easily be ascertained, 214——Advantage of Wick over Peterhead, as a site for a harbour of refuge, 215-218. 354-356——Advantage of St. Ives over certain other sites along that coast as a site for a harbour, 226-235. 338-348——Absence of correct data for calculating the exact number of vessels that pass along different points of the coast, 242-246.

Advantage of a harbour of refuge at Waterford in the event of vessels being caught in the Channel in a gale from certain points, 247-259. 277-281. 299-300——As regards a harbour at Wick, vessels would not make for it, nor pass through Pentland Firth, except as a matter of necessity; probable tonnage passing through the Firth, 262, 263. 269, 270. 322-325——Peculiar eligibility of Wick as a harbour of refuge with respect to naval purposes and national defence, 271, 272. 321. 354-356——Obstacle to Lough Strangford as a harbour of refuge, 274-276.

Means of effecting the necessary improvement at Wexford, 285-291——Further reference to Waterford Harbour; facility for improving it, 292-298——Reference to a report and chart by Mr. Calver, relative to a harbour of refuge on the east coast, 309. 317——The estimate of Captain Vetch for St. Ives Harbour was 175,000 *l.*; 318, 319——With respect to the saving of wrecks, Tees Bay is the most important point along the coasts for a harbour of refuge, 320. 450——Advantage if there were a fishery harbour made in Mount's Bay at Penlee Point, near Penzance, 334-337——Doubt as to the necessity of a harbour of refuge in Swansea Bay, 349-351.

Deep water entrance to the Orkneys at Stromness, 352, 353——Obstacle to improving the entrance to the Tay, 357, 358——Shelter in the Firth of Forth from easterly gales, 359——Partially shifting character of the Yarmouth sands, 360, 361——As regards small trading harbours, they might be improved by public grants in aid of local funds, 362, 363——Immense improvement of harbours in Scotland by the Government grant of 2,500 *l.* a year, under the Fishery Act, 363——Remarks relative to the probable cost of the several harbours of refuge contemplated by witness, and the means of defraying such cost, 364-381.

Character of the works contemplated at Hartlepool; how the material is to be obtained, 368-370. 466——Probability of the cost of Dover Harbour exceeding the estimate; the money will be well spent, 371-373. 448, 449——Portland breakwater, which will cost above a million sterling, is being made cheaper than any other breakwater in the kingdom, that is, at 85 *l.* a lineal foot, 374-376. 454-457——Suggestion that light dues or passing tolls be resorted to as one means of forming Hartlepool, or other harbours of refuge, 378-381——Expediency of the employment of convict labour on harbour of refuge generally, as well as at Portland, 381. 452.

Further evidence relative to, and in approval of the harbour at Holyhead, and the extension being made to the original works, 382-416——Statement as to the estimate and cost of this harbour; it will be a cheaper breakwater than Plymouth or Cherbourg, 383-387. 397-414. 446, 447——Remarks upon the course to be adopted in finishing the works at Holyhead, that is, as regards the superstructure of mason work upon the rubble work, 388-390. 394-396. 406-430.

Approval of upright walls of masonry begun upon the rubble stone below low-water mark, 388-390——At Dover the works are an upright wall from the foundation, there not being space for making the breakwater by slope, 389. 434-439——The Holyhead route to Ireland was selected for the mails, &c., by almost general concurrence, 431-433.——Progress being made with the works at Dover; expediency of the eastern pier being commenced forthwith, 435-445——Reasons for the expense of Holyhead breakwater being greater than that of Portland, 454-462——Practice in using convict labour to charge the works with the fair price of such labour, 463-465.

Waterford Harbour. At Waterford an expenditure of about 20,000 *l.* would accomplish very great service to shipping, *Washington* 182, 183. 292-298——Advantage of a harbour of refuge at Waterford in the event of vessels being caught in the channel in a gale from certain points, *ib.* 247-259. 277-281. 299, 300——Suggested removal of the hard shingle or sand bank at the mouth of Waterford Harbour; this might be done for less than 20,000 *l.*, *Vetch* 635-638. 708-714——Extent of benefit to be conferred on shipping by improving the harbour as suggested, *ib.* 639-642. 715-724.

Report, 1857—*continued.*

Waterford Harbour—continued.

Great importance of removing, by dredging, the bar across the entrance to the harbour; considerable refuge to be afforded thereby, *Fraser* 2434-2446. 2528-2541. 2575-2597. 2600-2603——Facility for improving the harbour at a slight cost, *Fraser* 2528-2541——It would probably be dangerous to remove Coningbeg Rock, but a light might be placed upon it, *ib.* 2598, 2599——A refuge at Waterford Harbour would be useful, but Milford Haven or Holyhead would be generally more available, *Hosken* 2869-2879. 2892-2901.

The removal of the bar at the entrance of Waterford Harbour might easily be accomplished, and would render the harbour extremely useful as a place of refuge; particulars hereon, *Hoskyn* 2951-2966. 3038-3043. 3055-3086. 3106——The bar should be lowered to the depth of eighteen feet, *ib.* 2957——During six or eight years witness observed no change in the bar at Waterford, *ib.* 3083-3086.

Considerable importance of a means of refuge in Waterford Harbour; it is the most desirable locality in the Channel for a harbour of refuge, *Wherland* 3924-3931. 3940-3945. 3953. 3959-3964. 3978-3980——Waterford Harbour is not now available as a harbour of refuge, *Bourne* 4037, 4038——Evidence in favour of Waterford as the best site on the coast of Ireland for a harbour of refuge, *ib.* 4059. 4060.

Report of Captain Washington on Waterford Harbour; suggestions for its improvement, *App. p.* 249.

Memorial from the Chamber of Commerce of Waterford, to the Admiralty, to cause the Sun Shoals to be dredged, &c., *App. p.* 252——Letter from the Liverpool Shipowners Association to the Lords Commissioners of the Admiralty, in support of the foregoing memorial, *ib.*

Wear, The. See *Sunderland.*

West Coast. See *England, West Coast of.*

Wexford Harbour. An outlay of about 40,000 *l.* in improving the entrance to Wexford is greatly required, *Washington* 175-181——Numerous wrecks along the coast near Wexford, *ib.* 177. 282-284——Means of effecting the necessary improvement, *ib.* 285-291.

Great difficulty of improving Wexford Harbour by attempting a direct removal of the shifting sand-banks at the entrance; suggestion hereon that a channel be cut through the Gull Bar, whereby a powerful scour would be created, which would be more effectual than any dredging apparatus, *Vetch* 623-634. 685-707. 807-811.

On the east coast of Ireland the Harbour of Wexford might be improved by dredging the channel, *Sulivan* 1093, 1094——Further reference to Wexford Harbour, steps being taken for dredging the channels, *ib.* 1299-1305.

Any improvement of Wexford Harbour would be available only for local purposes, *Fraser* 2429-2433. 2473. 2522-2524——Nature of the obstructions to the entrance to the harbour, *ib.* 2468-2471. 2570-2574——A large extent of land might be reclaimed from the sea at Wexford at a very trifling cost, *ib.* 2525-2527——Worse bar at Wexford than at Waterford; much less eligibility of the former than of the latter place as a harbour of refuge, *Hoskyn* 2959-2967. 3041-3048. 3061-3064. 3069, 3070. 3104, 3105——Decided objection to any outlay with a view to a harbour of refuge at Wexford, *Wherland* 3981-3983. 4012, 4013. 4020, 4021.

Wherland, Frederick. (Analysis of his Evidence.)—As master of a vessel has had much experience in the sailing of foreign bound vessels from Liverpool, 3913-3917——Advantage of a harbour of refuge at Carlingford in the case of American vessels caught in a south-west gale after leaving the Mersey, 3918-3923. 3970-3978. 4017-4019——Danger in the Channel chiefly when the wind is north-west or south-west, 3919, 3920. 3936-3939——Dublin Bay and Kingstown Harbour are rather critical places to make for in a gale, 3921. 3951. 3966-3973. 4000-4003.

Considerable importance of a means of refuge in Waterford Harbour; it is the most desirable locality in the Channel for a harbour of refuge, 3924-3931. 3940-3945. 3953-3959-3964. 3978-3980——Danger of the navigation in the vicinity of Tuskar, near Waterford, 3924-3928——Disadvantage of Milford Haven as a harbour of refuge, it being on a lee shore; it is not much used, 3930-3932. 3941. 3979. 4004-4010.

Unwillingness of captains to use harbours of refuge if compelled to pay tolls, unless they are very light, 3933-3935. 4024-4026——Objection to Holyhead Harbour as being a lee harbour; difficulty in getting out of it, 3946-3948. 4027——Dangerous banks along the Irish coast from Tuskar up to Carlingford, 3949, 3950——Disadvantage of the Isle of Man, in its being nearly embayed, as a locality for a harbour of refuge, 3954, 3956. 3976, 3977——Advantage of a low passing toll, rather than of a higher refuge toll, 3957-3959——Decided objection to any outlay with a view to a harbour of refuge at Wexford, 3981-3983. 4012, 4013. 4020, 4021——Objection to floating lights as near Dublin and Liverpool, 3984-3991. 4002, 4003.

Report, 1857—*continued.*

WICK:

1. *Generally, in favour of a Harbour of Refuge at Wick.*
2. *Advantage of the Harbour as a Naval Station.*
3. *Facilities of Construction.*
4. *Recommended Construction on the Stage Principle.*
5. *Several Plans proposed.*
6. *Cost.*
7. *Means of defraying the Cost.*
8. *Extent of Refuge by means of the proposed Harbour.*

1. *Generally, in favour of a Harbour of Refuge at Wick:*

Evidence in detail in favour of a harbour of refuge at Wick, on the north-east coast of Scotland, *Washington* 40–48. 215–218. 236–241. 313, 314. 321–331; *Vetch* 478, *et seq.* 725–739. 892–896——On the east coast of Scotland a harbour is required at Wick, and there only, *Sulivan* 981. 1030——At present the harbour at Wick is almost useless, *ib.* 1003, 1004——Some protection for vessels is necessary at Wick, *Jackson* 2815–2818.

2. *Advantage of the Harbour as a Naval Station:*

Peculiar eligibility of Wick as a harbour of refuge, with respect to naval purposes and national defence, *Washington* 271, 272. 321. 354–356——The proposed harbour will accommodate Her Majesty's ships of war in any number that may be on that coast, *Vetch* 525. 652, 653——National importance of a harbour of refuge at Wick, *Sulivan* 1244, 1245. 1251–1256——Advantage of Wick over Longhope as a naval station in time of war, *ib.* 1256–1258.

As regards the coaling and accommodation of Her Majesty's vessels in time of war, a harbour at Wick is not essential, *Calver* 2197, 2198. 2395–2399.

3. *Facilities of Construction:*

Peculiar natural facilities for the construction of the proposed harbour at Wick, *Sulivan* 1030–1036. 1267——The necessary stone can be obtained with great ease, *ib* 1031, 1032. 1034–1036——Greater facility for obtaining rough deposit at Wick than at Portland, *Coode* 1579. 1585.

4. *Recommended Construction on the Stage Principle:*

Wick Harbour should be constructed on the same principle as Portland Harbour; that is, by means of a fixed stage for the deposit of the stone, *Coode* 1580.

5. *Several Plans proposed:*

Advantages of the larger harbour, as proposed by the Admiralty, over the more limited plan of the Wick Harbour Commissioners; estimated cost of each, *Washington* 48–73. 265–268. 313, 314. 328–331.

Strong objection to the proposition of the Fishery Society, by which it is intended merely to throw out a pier from the south shore, to reach nearly half way across Wick Bay, *Vetch* 494–509. 725–729——Explanation relative to witness's scheme for a harbour of refuge; its advantages, *ib.* 510–529. 647–653. 739——Plan of construction of the harbour as regards the piers; material to be employed, *ib.* 511. 516–521. 649–651. 785–788——It is many years ago since witness inspected Wick Bay, *ib.* 943–945.

The improvements proposed by the Wick Harbour Commissioners or the Fishery Society, would be of vast service to fishing boats, but would not accomplish a safe refuge generally, *Sulivan* 1005–1013. 1246–1250—— Statement as to witness when at Wick having drawn a plan for a harbour of refuge, very nearly similar to the plan subsequently drawn by Captain Vetch, *ib.* 1014–1019.

Approval of the harbour proposed at Wick by the Fishery Society, by means of a breakwater from the southern coast; it would, however, be very apt to silt up, *Calver* 1980–1988. 2004–2022——Disapproval of the plan of Captain Washington and Captain Vetch for breakwaters from both the north and south coasts at Wick; not only would the harbour silt up in course of time, but the rebound of the sea off the works would be very dangerous, *ib.* 1989–2003. 2009–2023. 2142–2183.

Paper by Captain Vetch with reference to the importance of a harbour at Wick, and the plans proposed for its construction, *App. p.* 253, 254.

Letter from Captain Vetch to the Secretary to the Admiralty, dated 1st November 1856, containing sundry suggestions relative to a harbour of refuge, *App. p.* 255, 256.

6. *Cost:*

Explanation relative to the estimate by Mr. Coode, Admiralty engineer at Portland, of the cost of the proposed harbour at Wick; total cost of, 175,000*l.* or 186,000*l.*, according to the depth of the upright wall, *Vetch* 516–524.

A harbour at Wick would be cheaper than at any other point in Scotland or England, *Sulivan* 1030. 1267——Witness when at Wick estimated that a fine harbour could be made

Report, 1857—*continued.*

Wick—continued.

6. *Cost*—continued.

made there for 250,000*l.*, *Sulivan* 1171, 1172——Further reference to witness's estimate of the cost of a harbour of refuge; confidence expressed in the correctness of lower estimates by others, *ib.* 1262–1267.

Witness has not personally examined Wick, but has judged of the locality by chart and description, upon which he has made two estimates of the cost of a harbour of refuge there, *Coode* 1574–1587——Witness's estimates of the cost were founded upon his experience at Portland; confidence in their accuracy, *ib.* 1581–1587. 1750, 1751.

Letter from Mr. Coode to the Secretary to the Admiralty, dated 10 February 1857, containing estimates and suggestions relative to the proposed harbour, *App. p.* 256, 257.

7. *Means of defraying the Cost:*

Rates were paid at Wick Harbour for hauling up boats for the winter, *Sulivan* 1164——Sum accumulated by the Wick Harbour Commissioners, *ib.* 1165, 1166——Vessels which should pay passing tolls towards a harbour of refuge, *ib.* 1182——Vessels not passing but occasionally using the harbour, should pay a higher toll, *ib.* 1182–1184.

8. *Extent of Refuge by means of the proposed Harbour:*

Great disaster in August 1847, in consequence of the want of a harbour of refuge; 100 lives were lost in one night, *Washington* 46——The proposed harbour would cover about 100 miles of coast, *ib.* 81——Numerous vessels to which the harbour would afford refuge, *ib.* 236–241——Vessels would not make for the harbour nor pass through Pentland Firth, except as a matter of necessity; probable tonnage passing through the Firth, *ib.* 262, 263. 269, 270. 322–325.

About 1,000 fishing boats, with about 5,000 men to navigate them, are congregated at Wick in the fishing season, *Vetch* 484——Doubt as to the probability of fishing vessels at Wick landing their cargoes on parts of the coast, *ib.* 730–732——A harbour at Wick would probably accommodate fishing boats of an aggregate value of 150,000*l.*; *ib.* 737–739——Further statement relative to the demand for a harbour at Wick, and the expediency of a large expenditure, *ib.* 900–906.

Considerable amount of shipping to which a harbour of refuge at Wick would be a great boon, *Sulivan* 1020–1029——Increased size and improved build of the fishing boats at Wick during the last few years, *ib.* 1259–1261——Number and value of the fishing boats from Wick and its neighbourhood, *ib.* 1261.

Considerable fishing trade of Wick, *Calver* 1976–1979——A harbour would be available chiefly for local purposes; it would not otherwise be much used, *ib.* 2137–2141. 2184–2191. 2328–2337. 2395–2401——Wick would not have been available in the case of vessels wrecked between Inverness and Kinnaird Head, *ib.* 2330–2332.

See also *Baltic Trade.* *Caledonian Canal.* *Pentland Firth.* *Peterhead.* *Pulteney Town Harbour.* *Scrabster.*

Wind (*North-east Coast.*) Chief danger on the north-east coast when the wind is from the east or south-east, *Sulivan* 1408——A south-east wind is not an embaying wind off the coast near Hartlepool, *Calver* 2238–2240. 2285. 2314——An east-north-east wind causes the greatest loss of shipping on the east coast, it being a direct embaying wind, *ib.* 2312——Danger on the east coast chiefly when the gale is south-east, *Robinson* 3551, 3552. 3665——A north-east wind is not so dangerous on the east coast as a wind from east-north-east to east-south-east, *ib.* 3570. 3673.

Danger on the coast when the wind is from the east of north-east or east-south-east, *Simey* 3688——The gales frequently begin from the north-east as well as from the south-east, *ib.* 3760–3765——Further statement as to the importance of a harbour of refuge when the wind is from the south-east, *Robinson*, 3868–3875——Great danger on the coast when the wind is from the east or east-south-east, *Heard* 4140–4142. 4167.

Wood Piles. Liability of wood piles, if long in the water, to injury from marine insects, *Coode* 1811.

Wrecks and Casualties. Witness, as Hydrographer of the Navy, has prepared a wreck chart of the British Isles, showing the whole of the wrecks that have occurred for the last five years, *Washington* 8–10——The total number of casualties in five years has been 5,128, the total losses being 244 by collision and 1,940 by stranding, *ib.* 12–21——The wreck chart referred to by witness includes casualties to decked vessels only, omitting those to fishing boats &c., *ib.* 36–38——Of the entire number of wrecks on the coasts of the United Kingdom, and within its seas, fully one quarter occur between St. Abb's Head and Flamborough Head, *ib.* 108–110——One-half of the entire wrecks occur on the east coast altogether, *ib.* 108. 110——Numerous wrecks occasionally at the mouth of the Tyne, *Washington* 188, 192; *Cowen* 3339. 3421–3423; *Heard* 4137. 4155.

Explanation relative to a return showing the number of vessels wrecked or damaged, the value, and the number of lives lost, between Fern Islands and Flamborough Head, and between Flamborough head and the Nore in 1854, 1855, 1856 and the first six months of 1857,

Report, 1857—*continued.*

Wrecks and Casualties—continued.

1857, *Sulivan* 1059-1067——Much greater number of wrecks in the first six months of 1857 than in the whole of 1855 or 1856; probable causes, *ib.* 1059-1067——Doubt whether the increased number of wrecks is due to increased trade, *ib.* 1062-1067 —— Total wrecks and casualties for the last five years, *ib.* 1097-1099 —— Examination as to the probable number of wrecks which might have been prevented by harbours of refuge at Hartlepool and other places, *ib.* 1195-1218——How far the construction of steamers for the coal trade on the east coast may affect the estimates of loss from shipwrecks on that coast, *ib.* 1385-1393.

The total wrecks for the United Kingdom in 1855 were 1,141, and in 1856, 1,153, *Jackson* 2823——Great trade and numerous wrecks on the east coast adverted to, as constituting a peculiarly strong claim for a harbour of refuge on that coast, *Calver* 2287-2293. 2342-2369. 2402-2409——Amount of traffic, and loss of life and property along the south coast adverted to as not constituting a claim at all equal to that of the east coast for a harbour of refuge, *ib.* 2338-2341. 2370-2375.

About twenty-five per cent of the wrecks on the east coast might be prevented by a harbour of refuge, *Robinson* 3522, 3523——Numerous class of wrecks which a harbour of refuge would not obviate, *ib.* 3524. 3530-3532——Numerous wrecks through vessels making in a gale for the harbours to which they are bound, *ib.* 3546, 3547.

Numerous wrecks through vessels crowding into bar harbours, *Alcock* 3845-3848 ——Frequent wrecks through vessels getting crowded together in entering the harbours, *Robinson* 3665——Prevention of many wrecks if vessels did not make for port or get embayed, *ib.* 3885——Question whether the smaller vessels wrecked on entering the Tyne, &c. in gales could have kept out at sea, *Heard* 4169-4172.

Reference in report of Mr. Calver, dated 6th December 1856, to the great number of wrecks along the east coast, and the large proportion which occur on the embayed coast north of Flamborough Head, *App. p.* 245, 246.

See also *Carlingford.* *Colliers.* *Collisions.* *Hartlepool*, 1. *Loss of Life.* *Loss of Property.* *Manning of Colliers, &c.* *St. Ives.* *Tees Bay.* *Tyne, The* (*or Tynemouth*), 2. *Waterford Harbour.* *Wexford Harbour.* *Wick*, 8. *Wind* (*North-east Coast*).

Y.

Yarmouth Roads. Yarmouth Roads are in a great measure a natural harbour of refuge, *Washington* 124—— Partially shifting character of the Yarmouth sands, *ib.* 360, 361 ——Natural refuge afforded by Yarmouth Roads, *Calver* 1876, 1877——The Yarmouth and Lowestoft Roads is the kind of harbour of refuge required to be produced by artificial means, *ib.* 1908-1911.

Nº 1.

WRECK CHART
OF THE
BRITISH ISLES
FOR
1852.3.4.5&6.

Compiled from the Admiralty and Board of Trade Returns.

SHOWING ALSO THE PRESENT LIFE BOAT STATIONS.

SUMMARY.

CASUALTIES IN FIVE YEARS.

	Vessels
Totally lost by stranding or otherwise	1940
Totally lost by collisions	248
Seriously damaged & had to discharge	2401
Collisions with serious damage	543
Total	5128

TOTAL LOSS OF LIFE IN 5 YEARS 4148.

SYMBOLS.

- Signifies Total loss by stranding or otherwise. The dots in the open Sea represent Vessels that have foundered or are missing.
- Signifies Vessels seriously damaged Had to discharge.
- " Vessels in collision with serious damage.
- " Vessels in collision with total loss.
- The arrows point to the spot at, or near, which the accident occurred, or the port to which the damaged vessel returned for repairs &c.&c.
- Represents a life-boat.

Scale of Nautic Miles.

Nº 262. Ordered by The House of Commons to be Printed 11th August 1857.

THE NORTH EAST COAST OF
ENGLAND
FROM THE HUMBER TO THE FIRTH OF FORTH.

To illustrate Mr Calver's report to the Hydrographer, dated 6th Dec. 1856, upon the general question of a Refuge Harbour for the Eastern Coast of England.

Soundings in Fathoms at Low Water Spring Tides.

DURHAM

NORTHUMBERLAND

HARTLEPOOL
Annual traffic 19 066 Vessels.
Annual Wrecks 20½ Vessels.

SEAHAM.
Annual traffic 4010 Vessels.
Annual Wrecks 3½ Vessels.

SUNDERLAND.
Annual traffic 18 704 Vessels
Annual wrecks 19½ Vessels.

PORT OF TYNE.
Annual traffic 45 000 Vessels
Annual wrecks 24 Vessels.

NEWCASTLE

BLYTH.
Annual traffic 2870 Vessels.
Annual wrecks 4½ Vessels.

WARKWORTH.
Annual traffic 4164 Vessels.

BERWICKSHIRE

Hartlepool Bay

Lights E & W

Lights E

Seaham

SUNDERLAND

River Tyne

South Shields

North Shields

Tynemouth

Blyth

Lights

Cambois Rock

Newbiggin

Cresswell

Druridge Bay

Coquet Light F.

Amouth Bay

Warkworth

Dunstanborough

Boulmer

Wooler

Alnwick

Belford

Tweed

Berwick

Holy I.

Farne I.

FARN IS.

Longstone Light H.

Hedderstone

Magnetic

Hartlepool Bay 8 Miles.

Seaham 11 Miles.

Sunderland 10 Miles.

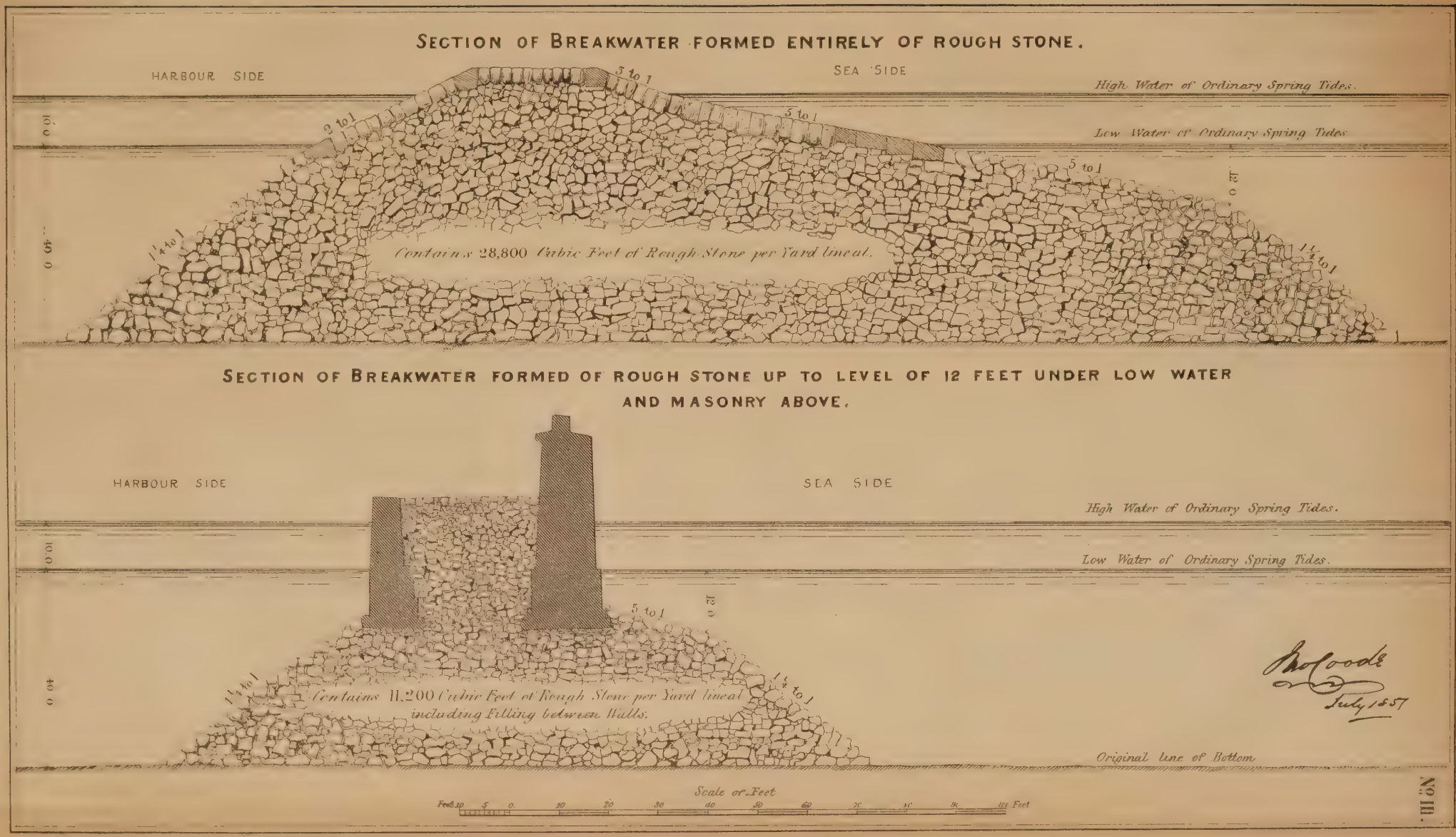
Shields 9½ Miles.

Blyth 34 Miles.

Warkworth 4 Miles.

LINE OF EMBAYMENT WITH AN E. BY N. WIND.

30 35 40


SECTION OF BREAKWATER FORMED ENTIRELY OF ROUGH STONE.
HARBOUR SIDE
SEA SIDE
High Water of Ordinary Spring Tides.
Low Water of Ordinary Spring Tides
3 to 1
2 to 1
5 to 1
1¼ to 1
Contains 28,800 Cubic Feet of Rough Stone per Yard lineal.
SECTION OF BREAKWATER FORMED OF ROUGH STONE UP TO LEVEL OF 12 FEET UNDER LOW WATER AND MASONRY ABOVE.
HARBOUR SIDE
SEA SIDE
High Water of Ordinary Spring Tides.
Low Water of Ordinary Spring Tides.
Contains 11,200 Cubic Feet of Rough Stone per Yard lineal including Filling between Walls.
Original line of Bottom
July 1857
Scale of Feet
Feet 10 5 0 10 20 30 40 50 60 70 80 90 100 Feet

No. III.

J. Beere, lith.

No. 262. Ordered by The House of Commons, to be Printed, 11th. August 1857.

Henry Hansard, Printer

Standidge & Co Lith. Old Jewry London.

Nº 262. Ordered by The House of Commons to be Printed. 11th August 1857.

Henry Hansard

No. V.

WATERFORD,

FROM THE ADMIRALTY SURVEY,
BY CAPTN FRAZER, R.N.
1848.

Springs rise 13 Ft. Neaps rise to 10 Ft.
Soundings in Feet
at Low Water Spring Tides.

The Red Color *shows the* Channel
proposed to be dredged.

Hell Pt
Kings Bay
Arthurstown
C.G.
Quay
Tower
Church
Passage
Pilot Sprat Weirs
Station
Perch
Dunbrod
Dunbrod Park
Watering Place
Greenhill
Rock Lodge
Crooke Hills
R.C. Chapel
Grove Church (ruins)
Drumroe Bank
Light F. 128 ft. high
Mortella Tower
Mortella Tower
Passage
Salmon Weir
Quay
Duncannon Fort
Two Lights F. and vertical
Lower one a tide Light
Upper one 53 ft. high
Weir
Geneva Barrack (ruins)
Strand
Duncannon Strand
Prior Hill
Astira Cove
Weirs
Aldridge
Ballistraw Head
Spit Buoy
Duncannon Spit
Aldridge Cove
Ballinruan
Newtown Head
Dromina Lodge
Salmon Weir
Ballistraw Flat
Dromina House
River
Lower Woodstown
C.G.
Salmon Weir
Middle Buoy Red
W. Buoy Red
Woodstown
Booley Bay
Dollar Bay
Gualtier Cottage
Strand
DUNCANNON BAR
Broomhill Pt
Philips Hole
Broom Hill
Broomhill
Cotton Hole
Ballyglan
Weir
Knockavelish
Knockavelish Cottage
Knockavelish Head
Hill Hole
Seal Hole
Stonewall Bay
School
Templetown Church
Salmon Weir
Credan Head
Pack Rock
The two Duncannon Lights in one N.N.E. ½ E. mark for crossing the Bar.
Castle Rock
Raheen Coves
Credan
Scale.
Yards 100 0 500 1000 2000 Yards

No. 262. Ordered, by The House of Commons, to be Printed, 11th August, 1857.

WICK BAY.

FROM THE ADMIRALTY SURVEY.

High Water Full & Change XIh.
Springs rise 10 ft. Neaps 7½ ft.

Soundings in Fathoms.

The Piers A,B&C,D, Designed by Capt. Vetch R.E.
Sheltering an Area of about 115 Acres at Low Water:
D° *D°* 62 2 *Fathoms & upwards.*
D° *D°* 42 3 *D°* *D°*

The Pier E,F,G, Proposed by the British Fishery Society.
Sheltering an Area of about 16½ Acres at Low Water:
D° *D°* 9 2 *Fathoms & upwards.*
D° *D°* 3½ 3 *D°* *D°*

The following abbreviations are used to shew the nature of the bottom – cl. clay, g. gravel, m. mud, r. rock, s. sand, sh. shells, st. stones, The figures on the land indicate the height in feet above High Water.

LOUISBOROUGH

WICK

Chapel

Market Place

Town Hall

Custom House

Commercial Bank

Rosebank

Beacon

Lower Pulteney

Timber Yard

Inner Harbour

Outer Harbour

Academy

Chapel

Chapel

Argyle Square

Saw Mill

Toll Bar

Patent Ropery

Brewery

Hospital

PULTENEY TOWN

Donald Reid's Tomb

Tom Dunbar

Blue Rock

Salmon House

Salmon Rock

Custom House

Flagstaff

Agents House

Well of Cairn Dunn

Log Buoy

Boat Haven

Pennistone

HEAD OF WICK

Pronaldsway Head

SOUTH HEAD

Look Out

Flagstaff

Height of Tower 20' 6"

92

Well

Cross Section of Pier, E,F,G.
at a depth of 20 feet at Low Water.

OUTER SIDE

Entrance Passage

Cross Section of the Piers, A,B&C,D.
at a depth of 36 feet at Low Water.

INNER SIDE

OUTER SIDE.

36'

feet 10 0 50 100 feet

Var.n 25°40'W

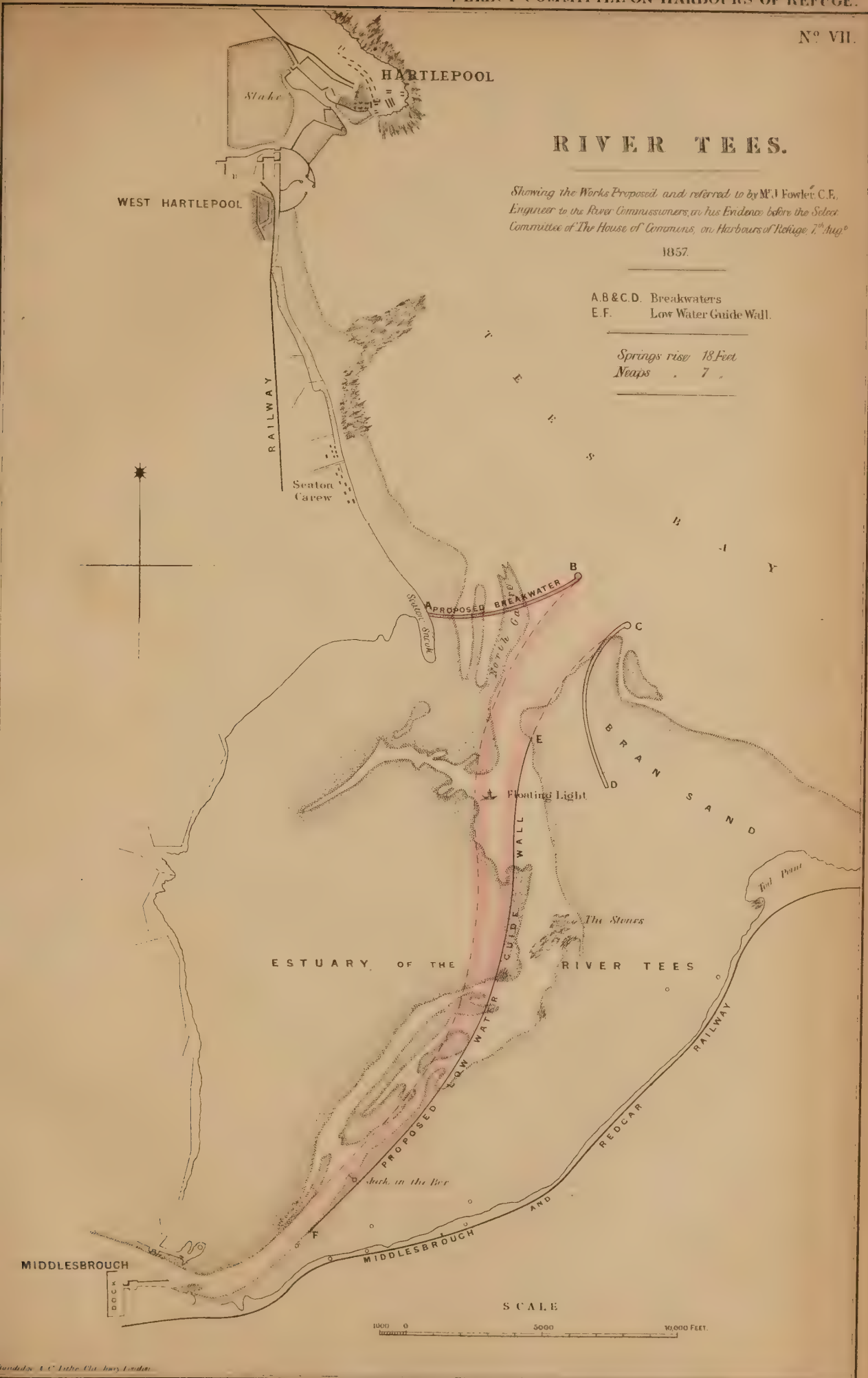
Scale of Plan.

Yards 100 0 100 200 300

Feet 1000 500 0

No. 262. Ordered ... The House of Commons.

No. VII.



RIVER TEES.

Showing the Works Proposed and referred to by Mr. J. Fowler C.E. Engineer to the River Commissioners, in his Evidence before the Select Committee of The House of Commons, on Harbours of Refuge, 7th Aug.t 1857.

A.B.&C.D. Breakwaters
E.F. Low Water Guide Wall.

Springs rise 18 Feet
Neaps . 7 .

No. 262. Ordered, by The House of Commons, to be Printed, 11th August, 1857.

REPORT

FROM THE

SELECT COMMITTEE

ON

HOP DUTIES;

TOGETHER WITH THE

PROCEEDINGS OF THE COMMITTEE,

MINUTES OF EVIDENCE,

AND APPENDIX.

Ordered, by The House of Commons, *to be Printed,*
7 *August* 1857.

252—Sess. 2.

Jovis, 28° die Maii, 1857.

Ordered, THAT a Select Committee be appointed to inquire into the Operation of the Excise and Customs Duties upon Hops.

Veneris, 29° die Maii, 1857.

Select Committee nominated; viz.—

Mr. Dodson.	Mr. John Locke.
Viscount Pevensey.	The Chancellor of the Exchequer.
Mr. Wykeham Martin.	Mr. Brand.
Mr. Beresford Hope.	Mr. Beach.
Sir Edward Dering.	Mr. Ball.
Mr. Bass.	Mr. Blakemore.
Mr. Hanbury.	Mr. Knight.
Sir John Shelley.	

Ordered, THAT the Committee have power to send for Persons, Papers, and Records.

Ordered, THAT Five be the Quorum of the Committee.

Veneris, 7° die Augusti, 1857.

Ordered, THAT the Committee have power to report the Minutes of Evidence taken before them to the House.

REPORT - - - - - - - - - - - - - - p. iii
PROCEEDINGS OF THE COMMITTEE - - - - - - p. iv
MINUTES OF EVIDENCE - - - - - - - - - - p. 1
APPENDIX - - - - - - - - - - - - - - p. 405

REPORT.

THE SELECT COMMITTEE appointed to inquire into the Operation of the EXCISE and CUSTOMS DUTIES upon HOPS;—

HAVE examined the matters to them referred, and have agreed to report to the House the MINUTES of EVIDENCE taken before them, with an APPENDIX.

7 August 1857.

PROCEEDINGS OF THE COMMITTEE.

Lunæ, 8° *die Junii*, 1857.

MEMBERS PRESENT:

Sir John Shelley.	The Chancellor of the Exchequer.
Mr. W. Martin.	Mr. Brand.
Sir Edward Dering.	Mr. Dodson.
Mr. Blakemore.	Mr. J. Locke.
Mr. Beresford Hope.	Mr. Knight.
Mr. Bass.	Mr. Beach.

Mr. DODSON was called to the Chair.

Mr. *Pressly* and Mr. *Dobson* to attend on Thursday next.

Committee to meet on Mondays and Thursdays, at Twelve o'clock.

[Adjourned to Thursday next, at Twelve o'clock.

Jovis, 11° *die Junii*, 1857.

MEMBERS PRESENT:

Mr. DODSON, in the Chair.

Mr. John Locke.	Mr. Knight.
Mr. Brand.	Mr. W. Martin.
Viscount Pevensey.	Mr. B. Hope.
Sir E. Dering.	Mr. Ball.
Mr. Bass.	Sir John Shelley.
Mr. Blakemore.	The Chancellor of the Exchequer.

Petition from Valley of the Terne, against alteration of duties, read.

Mr. *Charles Pressly*, Mr. *Thomas Dobson*, and Mr. *Lawrence Reeve*, examined.

[Adjourned to Monday next, at Twelve o'clock.

Lunæ, 15° *die Junii*, 1857.

MEMBERS PRESENT:

Mr. DODSON, in the Chair.

Sir John Shelley.	Sir E. Dering.
Mr. W. Martin.	Mr. Brand.
Mr. B. Hope.	Mr. Knight.
Mr. Ball.	Mr. John Locke.
Mr. Hanbury.	Mr. B. Blakemore.
Viscount Pevensey.	

Petition of hop planters of county of Hereford, against alteration of duties, read.

Mr. *Frederick Webster*, Mr. *Tilden Smith*, and Mr. *Henry Selmes*, examined.

[Adjourned to Monday next, at Twelve o'clock.

Lunæ, 22° *die Junii*, 1857.

MEMBERS PRESENT:

Mr. DODSON, in the Chair.

Mr. Ball.	Sir J. Shelley.
Mr. Knight.	Mr. John Locke.
Mr. W. Martin.	Sir Edward Dering.
Mr. Brand.	Mr. Blakemore.
Mr. Beresford Hope.	Mr. Bass.

Petition from county of Hereford, against alteration of duties, read.

Petition from county of Sussex, for repeal of duties, read.

Mr. *Robert Tooth*, examined.

Mr. *Lawrence Reeve*, re-examined.

[Adjourned to Thursday next, at Twelve o'clock.

Jovis, 25° *die Junii*, 1857.

MEMBERS PRESENT:

Mr. DODSON, in the Chair.

Mr. Wykeham Martin.	Sir John Shelley.
Mr. J. Locke.	Lord Pevensey.
Mr. Brand.	Mr. Beach.
Mr. Knight.	Mr. B. Hope.
Sir Edward Dering.	Mr. Ball.
Mr. Bass.	

Dr. *Monckton* and Mr. *Patrick Simpson Punnett*, examined.

[Adjourned to Monday next, at Twelve o'clock.

Lunæ, 29° *die Junii*, 1857.

MEMBERS PRESENT:

Mr. DODSON, in the Chair.

Sir J. Shelley.	Mr. Knight.
Mr. Brand.	Mr. W. Martin.
Sir E. Dering.	Mr. Blakemore.
Mr. Beach.	Viscount Pevensey.
Mr. J. Locke.	

Mr. *Thomas Neve*, Mr. *Punnett*, and Mr. *William Carter*, examined.

[Adjourned to Thursday next, at Twelve o'clock.

Jovis, 2° *die Julii*, 1857.

MEMBERS PRESENT:

Mr. DODSON, in the Chair.

Mr. Wykeham Martin.	Sir J. Shelley.
Mr. Brand.	Mr. Beach.
Mr. Knight.	Mr. Bass.
Mr. J. Locke.	Sir E. Dering.
Mr. Blakemore.	Mr. B. Hope.

Mr. *George Hammond*, Mr. *James Harris*, Mr. *James Hartridge*, and *Samuel Lancaster Lucas*, Esq., examined.

[Adjourned to Monday next, at Twelve o'clock.

Lunæ, 6° *die Julii*, 1857.

MEMBERS PRESENT:

Mr. DODSON, in the Chair.

Mr. Brand.	Sir Edward Dering.
Mr. W. Martin.	Mr. Bass.
Mr. Blakemore.	Mr. John Locke.
Mr. Beach.	Mr. Knight.

Major *Curteis*, Mr. *Henry Bannerman*, and Mr. *George Hammond*, examined.

[Adjourned to Thursday next, at Twelve o'clock.

Jovis, 9° *die Julii*, 1857.

MEMBERS PRESENT:

Mr. DODSON, in the Chair.

Mr. Blakemore.	Mr. John Locke.
Mr. W. Martin.	Sir John Shelley.
Mr. Beach.	Sir Edward Dering.
Mr. Knight.	Mr. Bass.

Mr. *J. P. Smith*, Mr. *Wm. Taylor*, Mr. *Ben. Nichols*, Mr. *Isaac Mannington*, and Mr. *James Selmes*, examined.

[Adjourned to Monday next, at Twelve o'clock.

Lunæ, 13° *die Julii*, 1857.

MEMBERS PRESENT:

Mr. DODSON, in the Chair.

Mr. W. Martin.	Mr. J. Locke.
Mr. Beach.	Mr. Beresford Hope.
Sir E. Dering.	Mr. Bass.
Mr. Knight.	Viscount Pevensey.

Petition from County of Kent, against alteration of duties, read.

Mr. *Geo. O. Thirkell*, Mr. *Thos. Robt. Cutbush*, Mr. *Charles Leney*, and *H. T. Smith*, Esq., examined.

[Adjourned to Thursday next, at Twelve o'clock.

Jovis, 16° *die Julii*, 1857.

MEMBERS PRESENT:

Mr. DODSON, in the Chair.

Mr. Bass.	Mr. W. Martin.
Mr. Brand.	Sir Edward Dering.
Mr. John Locke.	Mr. Beach.
Viscount Pevensey.	Mr. B. Blakemore.

George Darby, Esq., *Henry T. Smith*, and *Robert M. Evans*, examined.

[Adjourned to Monday next, at Twelve o'clock.

Lunæ, 20° die Julii, 1857.

MEMBERS PRESENT:

Mr. DODSON, in the Chair.

Mr. Brand.	Mr. Beresford Hope.
Mr. J. Locke.	Mr. Bass.
Mr. W. Martin.	Mr. B. Blakemore.
Mr. Beach.	

Mr. *Geo. Gibson Richardson*, Mr. *William N. Harryman*, and Mr. *Henry J. Whitling*, examined.

[Adjourned to Thursday next, at Twelve o'clock.

Jovis, 23° die Julii, 1857.

MEMBERS PRESENT:

Mr. DODSON, in the Chair.

Mr. W. Martin.	Mr. Bass.
Mr. Brand.	Mr. B. Blakemore.
Sir Edward Dering.	Mr. John Locke.
Mr. Beach.	Mr. Beresford Hope.

George Darby, Esq., and Mr. *H. J. Whitling*, further examined.

Mr. *Thomas Warterton*, Mr. *John Nash*, and *Michael Thomas Bass*, Esq., M. P., examined.

[Adjourned to Thursday next, at Twelve o'clock.

Jovis, 30° die Julii, 1857.

MEMBERS PRESENT:

Mr. DODSON, in the Chair.

Mr. W. Martin.	Mr. Bass.
Mr. Knight.	Mr. Beresford Hope.
Mr. J. Locke.	Sir E. Dering.
Mr. Brand.	Mr. Beach.
Viscount Pevensey.	Mr. Hanbury.

Mr. *S. L. Lucas*, *Charles Pressly*, Esq., Mr. *Frederick St. John*, and Mr. *Thomas Parkes*, examined.

[Adjourned to Thursday next, at Twelve o'clock.

Jovis, 6° die Augusti, 1857.

MEMBERS PRESENT:

Mr. DODSON, in the Chair.

Mr. Beresford Hope.	Mr. Knight.
Mr. J. Locke.	Mr. Beach.
Mr. Wykeham Martin.	Mr. B. Blakemore.
Viscount Pevensey.	Sir John Shelley.
Mr. Brand.	Mr. Bass.
Sir Edward Dering.	

DRAFT REPORT, as proposed by the CHAIRMAN, read a first time, as follows:—

"Your Committee have examined, as witnesses, planters from the principal hop districts of England, brewers, and persons engaged in or connected with the hop trade.

"Your Committee find that the production of hops requires a greater expenditure of capital, and employs more labour to the acre, than any other branch of agriculture. The majority of the witnesses estimate the cost of cultivation, up to the time of picking, at from 22 *l.* to 30 *l.* per acre.

"The expenses of picking, drying, &c., are generally calculated at from 1 *l.* 16 *s.* to 2 *l.* 4 *s.* per cwt., including the Excise duty of 19 *s.* 7 $\frac{12}{100}$ *d.*, which may be regarded as an item in the cost of production.

"On a moderate computation, upwards of 2,000,000 *l.* are annually expended in the production of hops.

"The formation of a garden involves a great outlay, and a large amount of fixed capital is required in the shape of oast-houses, and other necessaries for preparing hops for market.

"The raising hop-poles forms an important branch of industry, in connexion with hop-growing in several counties.

"Hop-grounds are subject to an extraordinary tithe rentcharge, which varies considerably in different localities.

"The crop is most precarious, as sufficiently appears from the very uncertain amount of revenue received by the Exchequer from one year to another.

"In the year 1855, the duty exceeded eight times the amount charged in the preceding year.

"There are several kinds of hops produced in England, but they may be broadly divided into two classes; namely, those of an inferior description, grown for the most part in the Weald of Kent and Sussex, and upon other inferior soils; and others of a superior description, principally raised in Middle and East Kent.

"The market price of the inferior hops is commonly from 25 to 50 per cent. below that of the superior hops of Mid and East Kent.

"The fact of the Excise duty being an uniform charge per hundredweight upon both these classes, forms a constant ground of complaint of unequal taxation on the part of the cultivators of the soils on which the inferior hops are grown; and this is aggravated by the circumstance that they generally produce a greater quantity per acre, but of less value, and are thus subjected to the largest amount of duty.

"The tax is charged in October, and is paid in two instalments, the first on the 15th of May, the second on the 15th of November following.

"It differs from other duties in being levied, not on the manufactured article, or at the point of consumption, but on the raw material, and at the source of supply.

"The consumption of hops depends on the consumption of beer, which in this country is checked by the operation of the malt duty. The hop-grower has, from year to year, no control over the supply, and, the demand being limited, there is constant danger of production outrunning consumption, and causing a glut in the market. At the same time the deterioration in value which hops suffer when kept, prevents the superabundance of one year from adequately supplying the deficiencies of another.

"The case of the maltster and the barley-grower differs from that of the hop planter, inasmuch as the maltster can regulate the supply of malt, and both barley and malt can be used for other objects than the manufacture of beer; while hops are not available for any other purpose whatever.

"The duty, being a charge upon quantity, is heaviest in those years when hops are abundant, and consequently prices rule low.

"Complaint is made that in such years, the growers who have not been able to meet with a remunerative sale for their hops, and whose amount of capital may not enable them to pay the duty on demand, and to speculate upon a rise in the value of their crop, are reduced, as the day of payment approaches, to the necessity either of borrowing, or of forcing their hops into the market and selling them at a sacrifice, irrespective of the cost of production.

"It has been stated before Your Committee as a well-known fact in the trade, that the price of hops falls when duty day is at hand; and that when, in May last, the payment of the instalment then due was postponed, the price of hops immediately rose.

"The cultivators of the more favoured districts generally differ in their evidence from that given by the cultivators of the inferior soils, and state that they do not find the operation of the Excise duty oppressive or injurious; indeed, several of them do not hesitate to affirm that they consider it a positive benefit.

"That

"That distress has frequently prevailed among a very large portion of the hop-planters, is proved by the very numerous applications that, since the year 1800, have been made to the Treasury for postponement or remission of the duty; and in no less than 14 instances the Treasury has admitted the force of those applications, and deferred or remitted the payment.

"The years of distress appear in almost every instance to have been years of large crops, an observation which is borne out by the whole tenor of the evidence before the Committee.

"The long credit given to the planters for payment of the hop duty, seems to Your Committee objectionable in principle. The grower, who produces a crop, which he sells early in the season at a remunerative price, holds in his hands for many months a sum of money belonging to the country. Your Committee are satisfied, that this circumstance must act as a temptation to men of insufficient capital to embark in hop growing.

"On the other hand, if the duty were rigorously exacted at an earlier period, and at one payment, it would, in the case of all, but the most wealthy and prosperous growers, aggravate those effects which are already so loudly complained of.

"A scheme was submitted to Your Committee, for commuting the present tax on hops into a fixed charge per acre, but Your Committee are of opinion that such a system would be more objectionable than the existing arrangement.

"Other plans were proposed, several of them involving some reduction of the present amount of taxation.

"The Committee are, however, of opinion, that none of them fully meet the difficulties of the case, and that, though a reduction would afford relief to the planter, the only effectual remedy is the total abolition of the Excise duty; and Your Committee recommend that course to the serious consideration of Parliament, whenever the state of the public finances shall admit of it.

"If distress and discontent still continued to prevail, they could then no longer be charged to the Legislature, and it would be obvious that, where such was the case, the cultivation was from natural causes an unprofitable one, and had better be abandoned.

"The Customs duty amounts to 2 *l.* 5 *s.* per hundredweight, but it should be observed that the importer has this great advantage over the home grower, that he places his hops in bond, and only pays the duty when he sells them, and is not liable to it at all unless he sells.

"Both the imports and exports of hops have of late years increased; but they have almost equally balanced each other, except in the very high-priced year 1854, when the protective duty was, in the interest of the consumer, reduced for the time being to 1 *l.*

"The evidence as to the extent to which, if the Customs duty were altogether removed, foreign hops would be introduced into this country, and the prices at which they could be supplied, has been very conflicting, and is necessarily in great measure based upon conjecture.

"Bavarian and Bohemian hops are stated to be of first-rate quality. With regard to American, Belgian, and other foreign hops, they appear generally to be of an inferior class, and to be only imported when a very considerable difference of price offers an inducement.

"The accounts of prices of hops for an average of years in Bavaria, laid before Your Committee by different witnesses, do not sensibly vary from the prices of the best kinds of hops in England, while the Belgians, regard being had to quality, show no material difference from our own inferior sorts.

"To the consumers it would, considering the frequent occurrence of years in which the English crop is deficient, or altogether fails, be an unquestionable advantage to be allowed freely to draw their supplies from the most extended area, and if the result proved a permanent diminution in the cost of hops, the public would before long reap the benefit either in the reduced price or the improved quality of beer."

DRAFT REPORT, as proposed by Mr. KNIGHT, read a first time, as follows:—

"1. Your Committee have heard, from the Chairman of the Inland Revenue, that the present Excise duty on hops, which has produced, on an average of the last three years, a revenue of 434,485 *l.*, has been closely collected, without evasion or loss, at the cost of 17 *s.* 8 *d.* per cent.; the average cost of collecting the Excise being 3 *l.* per cent.

"2. Your Committee are of opinion that this duty is not in ordinary cases detrimental to the hop-grower, who, in fact, receives the duty from the purchaser the moment he sells his hops, and generally many months before he has to pay it to the Government.

"3. They believe that the Excise duty is in the end paid by the consumer in the price of beer. But since they learn that about 2 lbs. of hops are used in brewing 36 gallons of ordinary public-house or household beer, the duty on which would be only 4 *d.*, or 1-9th of a

penny per gallon; and since a person drinking a quart of such beer per diem pays less than 11 *d.* towards the duty in the course of a year, Your Committee cannot think that any appreciable benefit would be derived by the consumer in case the whole duty were taken off.

" 4. The duty is paid in two moieties, the first in May, and the second in November, of the year succeeding to that in which the crop is grown. This arrangement affords the grower a twelvemonth in which to dispose of his crop, and Your Committee believe that any change that would make the duty payable at a earlier period would be disadvantageous to the grower. It would tend to force him sooner into the market; to place him more at the mercy of his customers.

" 5. The applications for the postponement of the hop duty which have from time to time been pressed upon the Treasury, during the last 30 years, have resulted in this system of credit given to the planters by the Government, a system which is not granted in any other branch of the Excise, except in the case of the malt trade.

" 6. The distress which occasioned these applications was mainly caused by general depression in the country, and in the money market, by the quality of the crop of hops on hand being bad and almost unsaleable, or by the markets being glutted by superabundant crops; the inferior, and then unsaleable portions of which, should be retained, in order to take the chance of the markets of the following year.

" 7. Your Committee believe that the fact of more hops having been grown in 1855 and 1856 than were wanted for the consumption of the country, together with the extreme pressure of the money market and the increased duty on malt, have been the chief causes of the complaints which have called for the present inquiry. These were the two largest years of production ever known in England, and of which an immense stock is still unconsumed.

" 8. In such years, the market being overstocked with good hops at reasonable prices, a portion of the crop of coarse and inferior hops, and particularly the latter pickings, becomes unsaleable except to speculators, and at a ruinous loss to the grower.

" 9. The evidence clearly shows that a large capital is required by hop farmers, and that want of sufficient capital, is, also, one great cause of the losses said to be sustained by the Weald of Kent and Sussex hop-growers.

" 10. The duty, then, on these unsaleable hops must press very heavily on the needy grower, in addition to his other losses.

" 11. The dissatisfaction at the present state of the duties, however, appears to be almost entirely confined to the producers of hops of coarse and inferior growth, which are the least saleable in an overstocked market.

" 12. Several, but by no means all, of the Weald of Kent and Sussex hop-growers who have been examined have expressed an opinion that hop-growing is at best but a losing concern in England; but from the length of time during which these very gentlemen have been engaged in that business, from their having frequently increased their plantations largely since they embarked in it, and from the districts in which they live having long been, and still being, large hop-producing districts, Your Committee suspect that these witnesses have formed that opinion rather from the depression and disappointment, caused by the small value of coarse hops during the late two years of superabundant crops, than from a fair and unprejudiced consideration of the whole subject.

" 13. All the growers of the finer kinds of hops, who have been examined, as well as several of the Weald of Kent and Sussex growers, have assured Your Committee that in their districts hop-growing has been, in the long run, a good and profitable business.

" 14. It appears, however, to be clear, from the concurrent testimony of every hop-grower who has been examined, whatever his views on the subject of the duties may have been, that, from the uncertainty of the crop, and from the very low prices that prevail in years of large production, hop-growing could hardly be carried on in England if the high prices of some particular years did not afford compensation to the grower for the want of profit, and even for the loss, which he periodically experiences, sometimes from blight, sometimes from over-production. Your Committee believe that if the Customs and Excise duties were equalised or abolished, the introduction of large quantities of foreign hops at low prices would prevent prices from ever rising sufficiently high to reimburse the British grower for the years of loss and failure, and that the consequence would, before long, be fatal to the cultivation of hops in England.

" 15. The ordinary rules that apply to other crops do not hold good with hops, since the quantity required for consumption is very limited, and a very abundant crop throughout the English hop gardens produces far more than can be consumed in one year.

" 16. The immediate effect of large annual importations of foreign hops of fine quality would be, that many of the present chief consumers of the finest English hops would supply themselves largely with the foreign article; while those who now use the coarse British qualities would, in lieu of them, lay in their stocks of the finer sorts of English hops, which had been displaced by the foreign importations.

" 17. In

" 17. In fact, the annual introduction of a considerable supply of fine hops from abroad would have much the same effect on the market as if a double or treble crop of the finest qualities of English hops was annually grown. The better article would, of course, have the preference in the market, and a portion of the crop of coarse and inferior hops would remain unsold. It would place the Weald of Kent and Sussex growers permanently in the same position as that to which the large crops of 1855 and 1856 have reduced them, by bringing into the market a sufficient quantity of hops of a better quality than theirs to meet the English demand.

" Foreign Hops.

" Your Committee believe, from the evidence they have taken, that the hops of Bohemia and Bavaria are the finest that are produced in Europe; and Your Committee find that a considerable and increasing import trade is being established in them.

" It appears that the fineness of the quality, and the extent of the growth of foreign hops, were not understood by the brewers in this country before the large importation took place which was caused by the high prices of 1854. It is now evident that the present duty of 2 *l.* 5 *s.* per cwt. will not, in future, have the effect of preventing their importation in large quantities, to compete with the finest English qualities, even when English hops are selling so low as to afford no profit to the grower.

" Several merchants who deal in foreign hops have assured Your Committee that they could, at the present time, sell all the Bavarian hops they could get, at prices considerably higher than the quotations for East and Mid-Kents.

" One of the most eminent brewers of the day informed Your Committee that he has bought, since October last, about 11,000 cwt. of English hops, and from 3,000 to 4,000 cwt. of foreign hops of fine quality. The English portion of the supply consisted entirely of the best qualities, from East and Mid-Kent, and has averaged only 4 *l.* 16 *s.* 8 *d.* per cwt.; and Your Committee believe that the price realised by the grower of these hops will scarcely have equalled the cost of their production.

" Many of the Belgian hops are very good, and are superior to all, except the finest English growths. It appears that they are produced at a very low rate indeed, and could be introduced here, if the duties were equalised, at prices with which the Sussex and Weald of Kent growers would be wholly unable to compete.

" With regard to American hops, not much information has been given to Your Committee, and their quality has not been highly spoken of; but it has been shown that sufficient quantities of American and Belgian hops were brought over during the winter of 1854-55, under the reduced or equalised duties, completely to paralyse the hop trade, almost wholly to stop, for several months, the sale of Sussex hops, and ultimately to reduce their price by nearly one-half.

" The importers of foreign hops, in advocating the reduction of the Customs duty, rested their case on the average price of hops for some years past in Bavaria, and not on the cost of their production; but they admitted the great recent increase of plantations in continental hop districts, and their almost unlimited capability of extension.

" A steady and increased export trade, producing a corresponding increase of plantation, would surely force prices to their natural level; so that the real point to be considered is, not what has been the average price in former years in Bavaria or Belgium, but what is the cost of the production of hops in those countries, and at what price they can be sent to England at a profit.

" Your Committee believe that the following evidence, which has been given them on the subject, may be fully relied upon:—

" *Prime Cost of producing Hops in Bavaria.*

	£.	s.	d.	
" 1.* One-fifth of the crop is grown in what are called the 'City Districts,' including Spalt City, Hersbrück City, and the most valuable and highly cultivated districts in the Aisch-gründ, at a cost, on the average, of - - - - -	3	12	–	per cwt.
" 2.† One-third of the whole growth of Bavaria is produced in the district of Hallertaü, at an average cost of - - - -	1	10	11	per cwt.
" 3. The remainder of the crop costs, on an average - - -	1	19	10	„

Lucas (7226).

" Mr. Lucas'

" * The 'City Districts' are the old hop districts; the land is almost all in hop cultivation, and the plantations cannot be much increased. The price of land in Spalt city is nearly four times as great as in the Hallertaü, and that of labour at least one-third more than in the country districts.

" † Hallertaü is a new and most rapidly increasing hop district. Twenty years ago, only 5,000 cwt. were grown there in the year: its produce now amounts to 55,000 cwt. It contains 600 square miles fit for hop cultivation and 300 of woodlands. The prices of land and labour in this district are both less than in Belgium.

"Mr. Lucas' account is corroborated by the evidence of Mr. Whitling, an English hop merchant, who has been established for 13 years in Bavaria, who gives this account of the prices, including a profit to the grower:—

£. s. d.

Whitling (6648). "1. The Bavarian growers consider that a fair average price for their crop, to pay expenses and some little profit for the interest of the land, should be - - - - - - - 3 10 - per cwt.

"But that this is in the best part, the districts of Spalt, Hersbrück, and Hollenbach.

(6651). "2 & 3. He says that, in the other parts, the average price is much lower, that the land is inferior, and the crop less - - - much lower, but price not named.

Cost of an Acre of Hops before picking in Bavaria.

£. s. d.

Lucas (7205–7223). "Mr. Lucas calculates the whole cost of an acre of hops before picking, in the districts of Spalt, Hersbrück, Aischgründ, and Hallertaü, at an average of - - - - - - - 13 17 3 per acre.

"This is corroborated by Mr. Whitling, thus:

£. s. d. £. s. d.

Whitling (6628–6633). "The whole cost of an acre of hops before picking, he has got from four different districts in Bavaria, and from 1,000 proprietors, it averages from - - - 12 - - to 15 - - per acre.

Cost of Bavarian Hops in London..

£. s. d.

Lucas (7234). "Bavarian hops grown in Hallertaü can be delivered in London with a good profit paying the present duty, at - - - - - - 6 - - per cwt.

"Mr. Lucas calculates it thus:

£. s. d.

"Prime cost to the grower - - - - - - - - 1 10 - per cwt.
"Grower's profit - - - - - - - - - (say) 1 - - „
"Every other expense and freight to London, landing, &c., including a profit to merchant, as taken from a merchant's books - 1 4 7 „
"Duty - - - - - - - - - - - - 2 5 - „
5 19 7 „

"This is corroborated by Mr. Bass, thus:—

£. s. d. £. s. d.

Bass (7181 & 7565). "Mr. Bass says that he has bought between 3,000 cwt. and 4,000 cwt. of Bavarian hops this year at from - 6 10 - to 6 12 - per cwt.

"Thus it is clear that, if the Custom duty were repealed, hops of the finest quality from Bavaria could be sold in London at from - - - - - - - - 3 15 - to 4 5 - „

"Cost of Production of Hops in Belgium.

"Mr. Lucas gives the following prices:

£. s. d.

Lucas (7335–7339). "Alost town district - - - - - - - - 1 12 8 per cwt.
"Alost country district - - - - - - - 1 8 2 „
"Poperingue town district - - - - - - - 2 9 - „
"Poperingue country district - - - - - - 1 16 - „

"The largest production is in the Alost country district, and the plantation could be increased to an almost unlimited extent.

(7362.) "A Belgian agricultural commission reported the cost of production near Alost to be 1 *l.* 6 *s.* 2 *d.* per cwt.

"Mr. Lucas gives these details of the

(7343.) "Expenses on 1 cwt. of hops from the Alost district to its delivery into a bonded warehouse in London, including cost of cloth, packing, water-carriage to Antwerp, and expenses there; freight to London and expenses there, including Belgian merchant's profit, at - - - - - £. s. d. 12 - per cwt.

"Mr.

"Mr. Richardson, hop merchant, says, the cost of canvas, carriage, drying, and freight of Belgian hops into the Thames is 10 *s.* per cwt. Richardson (6033).

"The prices given by Mr. Lucas + the grower's profit + 12 *s.* for expenses, are the prices at which Belgian hops could be delivered into a bonded warehouse in London, if the Customs duty were taken off.

"We can thus form some idea of the power of the opponents with whom our hop-growers would, if the Customs duty were repealed, have to contend.

"The trade in foreign hops is now steadily increasing, and a considerable amount of English capital is invested in it; and Your Committee believe that foreign hops will enter largely into competition with the English growths at the present duties.

"Your Committee believe that, if the Customs duty were reduced to a level with the Excise duty, the foreign growers would, within a few years, make preparations for supplying this country with hops to an amount limited only by our powers of consumption; and that they would be enabled to do this at prices with which the English grower, labouring under the disadvantages of a varying climate and dear labour market, would be unable to compete.

Marking Hops.

"The whole evidence shows that the mark on hops is valuable to the consumer, and ought to be maintained; the object of those who wish it to be abolished can only be, to sell to unskilled persons hops of good colour and appearance, but of poor quality, as first-rate hops, such hops not being readily distinguished by unskilled persons.

Acreage Duty.

"The plan of an acreage duty has been pressed on the Committee by some of the witnesses. But it appears that it would require a duty of 6 *l.* 10 *s.* per acre to raise the same revenue as the present Excise duty. Only one of the witnesses who advocated this plan conceived that it would be possible to raise such a sum per acre in years of failing crops.

"They propose to put on an acreage duty of 3 *l.*, which would, in fact, reduce the duty by more than one-half.

"Your Committee think that, if such a reduction were resolved on, it would be far more advantageously carried out by taking off the war duty.

"An acreage duty, even of the amount proposed, would press very heavily on failing crops, and would, at best, bear no sort of proportion to the amount or value of the crops, produced in different years and in different districts.

"It would be unjust if an equal sum were charged on all hop land alike; and any attempt to place a duty according to a value on the land would be expensive, inconvenient, and almost impossible of execution.

"One or two plans for a sliding-scale have been laid before Your Committee; but they are not disposed to recommend a departure from the present simple mode of levying the duty, which appears to be satisfactory to by far the greater part of the hop-growers of the kingdom.

"It is impossible, in the opinion of Your Committee, to look upon the equalisation or repeal of the Customs and Excise duties on hops, as a question of free-trade. It would be manifestly an error to view the matter in any such light, as the consumption of hops is entirely dependent on the consumption of malt. Therefore whatever restriction is caused in the consumption of malt by the heavy Excise duty of 1 *l.* 1 *s.* 8 *d.* per quarter, must restrict to the same amount the consumption of hops.

"A plan was proposed by one of the witnesses at the last sitting of the Committee, who stated that it might be desirable to take off the hop duty, and to raise an equal amount of money by an increased duty of 1 *s.* 8 *d.* per quarter on malt. C. Pressly, Esq. (7414).

"It appears to Your Committee that this plan, if accompanied by the remission of the Customs duty, which was hinted at, would entail certain loss and injury on several important classes of Her Majesty's subjects, while no argument was adduced in its favour by the gentleman who brought it forward, except that it would simplify the collection of the revenue by reducing, by one, the number of articles on which it is paid.

"It appears to Your Committee that, if this arrangement were carried out,

"The hop-growers would be ruined by the hop-lands being put out of cultivation;

"The barley-growers and maltsters would be injured;

"The brewers would not be benefited; they would pay on malt the same amount of duty they now pay on hops;

"The consumer would get his beer no cheaper;

"That neither the revenue nor any other British interest could derive any advantage therefrom, and that the only person benefited would be the foreign hop-grower, who would pocket the 2,000,000 *l.* or 3,000,000 *l.* now annually distributed through several English counties as the price of the English crop of hops.

"The consequences of the abolition of the English hop gardens would be most ruinous and disastrous to the inhabitants of some of the fairest districts in England. It appears that whereas 100 acres of arable land can be tilled by the labour of four men, 100 acres of hop land will take the labour of from 34 to 50 men; and it is calculated that the hop-picking affords labour to 300,000 souls. The large population of the hop-growing parishes may thus be considered in some measure as a manufacturing population, and were the hop cultivation to be aboliahed, tens of thousands of poor persons would at once be thrown on the poor-rates; a great and ruinous depreciation would take place in the value of the land; buildings and oast-houses, to the value of hundreds of thousands of pounds, would become useless; a serious depreciation would take place in the wood-lands; and the clergy, by the loss of their extraordinary tithe, would share in the general ruin."

Motion made, "That the further consideration of the Draft Reports be postponed to Monday next" (Mr. *Brand*).—Question put. The Committee divided.

Ayes, 2.	Noes, 6.
Mr. Brand.	Mr. Wykeham Martin.
Viscount Pevensey.	Mr. Beresford Hope.
	Mr. Beach.
	Sir Edward Dering.
	Mr. Knight.
	Mr. J. Locke.

So it passed in the negative.

Motion made, "That the Draft Report proposed by Mr. Knight be now read a second time, paragraph by paragraph" (Sir *Edward Dering*).—Question put. The Committee divided.

Ayes, 5.	Noes, 3.
Mr. Beach.	Mr. Brand.
Sir E. Dering.	Mr. W. Martin.
Mr. Knight.	Viscount Pevensey.
Mr. J. Locke.	
Mr. B. Blakemore.	

So it was resolved in the affirmative.

Report read accordingly.

Paragraph 1, amended as follows: "Your Committee have heard, from the Chairman of the Inland Revenue, that the present Excise duty on hops, which has produced, on an average of the last 20 years, 322,000 *l.*, and, on an average of the last three years, a revenue of 434,485 *l.* has been closely collected, at the cost of 17 *s.* 8 *d.* per cent.; the average cost of collecting the whole of the Excise duties being 3 *l.* per cent."—Read, and agreed to.

Paragraph 2, read.—Amendment proposed, to leave out the words, "this duty," for the purpose of inserting the words, "the present system of Excise and Customs duties" (Sir *Edward Dering*).—Question, That the words, "this duty," be omitted, put. The Committee divided.

Ayes, 4.	Noes, 5.
Mr. B. Blakemore.	Mr. Brand.
Mr. Beach.	Mr. Wykeham Martin.
Sir Edward Dering.	Mr. Beresford Hope.
Mr. Knight.	Viscount Pevensey.
	Mr. J. Locke.

So it passed in the negative.

Further amendment proposed, to leave out the words "in ordinary cases" (Mr. *J. Locke*).—Question put. The Committee divided.

Ayes, 5.	Noes, 4.
Mr. Brand.	Mr. Beach.
Mr. Wykeham Martin.	Sir Edward Dering.
Mr. Beresford Hope.	Mr. Knight.
Viscount Pevensey.	Mr. B. Blakemore.
Mr. J. Locke.	

Words struck out accordingly.

Further Amendment proposed: after the word "that," to insert the words, "upon the evidence from the more favoured districts" (Mr. *Brand*).—Question, "That these words be inserted," put, and agreed to.

Further

Further amendment proposed, "To leave out the word 'detrimental,' in order to insert the words 'in combination with the Customs duty is not unacceptable' (Mr. *Beresford Hope*).—Question put, and agreed to.

Further amendment proposed, "To leave out the words 'hop-grower,' in order to insert the words 'hop-growers of those districts'" (Mr. *Brand*).—Question put. The Committee divided.

Ayes, 6.	Noes, 4.
Mr. Brand.	Mr. B. Blakemore.
Mr. Wykeham Martin.	Sir Edward Dering.
Mr. Beresford Hope.	Mr. Knight.
Viscount Pevensey.	Mr. J. Locke.
Mr. Beach.	
Mr. Bass.	

Amendment made accordingly.

Further amendment proposed, "To leave out from 'hop-grower' to the end of the paragraph" (Mr. *Brand*).—Question put. The Committee divided.

Ayes, 7.	Noes, 3.
Mr. Brand.	Sir Edward Dering.
Mr. Wykeham Martin.	Mr. Knight.
Mr. Beresford Hope.	Mr. Bass.
Viscount Pevensey.	
Mr. Beach.	
M. J. Locke.	
Mr. Blakemore.	

Words struck out accordingly.

Further amendment proposed: after the word "districts," to insert the words, "several of whom have declared that they consider the Excise duty a positive benefit, as tending, amongst other effects, to restrict cultivation" (Mr. *Brand*).—Question put, and agreed to.

Paragraph, amended as follows: "Your Committee are of opinion, that upon the evidence from the more favoured districts, this duty, in combination with the Customs duty, is not unacceptable to the hop-growers of those districts, several of whom have declared that they consider the Excise duty a positive benefit, as tending, amongst other effects, to restrict cultivation."—Read, and agreed to.

On paragraph 3, several amendments made.—Further amendment proposed, to leave out the word "appreciable," in order to insert the word "material" (Mr. *Beresford Hope*).—Question put. The Committee divided.

Ayes, 8.	Noes, 3.
Mr. Brand.	Mr. Beach.
Mr. Wykeham Martin.	Mr. Knight.
Mr. Beresford Hope.	Mr. J. Locke.
Mr. Blakemore.	
Mr. Bass.	
Sir John Shelley.	
Viscount Pevensey.	
Sir Edward Dering.	

Amendment made accordingly.

Further amendment proposed, at the end of the clause to insert the words, "Excepting in the encouragement of the use of a larger quantity of hops, and consequent improvement in the quality of the beer" (Sir *John Shelley*).—Question put. The Committee divided.

Ayes, 2.	Noes, 6.
Sir John Shelley.	Mr. Wykeham Martin.
Viscount Pevensey.	Mr. Beresford Hope.
	Mr. Blakemore.
	Mr. Beach.
	Sir Edward Dering.
	Mr. Knight.

So it passed in the negative. Question, "That the paragraph, as amended, be agreed to." The Committee divided.

Ayes, 6.	Noes, 5.
Mr. Beresford Hope.	Mr. Brand.
Mr. B. Blakemore.	Mr. Wykeham Martin.
Mr. Beach.	Sir John Shelley.
Sir Edward Dering.	Lord Pevensey.
Mr. Knight.	Mr. Bass.
Mr. J. Locke.	

So it passed in the affirmative.

Paragraph 3, amended as follows: "They believe that the Excise duty, although in the first instance paid by the hop-grower, is ultimately paid by the consumer in the price of beer; but since they learn that from 2 lbs. to 3 lbs. of hops are used in brewing 36 gallons of ordinary public-house or household beer, the duty on which would be from 4*d.* to 6*d*; and since a person drinking a quart of such beer per diem pays from 10*d.* to 15*d.* towards the duty in the course of a year, Your Committee cannot think that any material benefit would be derived by the consumer in case the whole duty were taken off."—Read, and agreed to.

Paragraph 4, amended, as follows: "The duty is paid in two moieties, the first in May and the second in November of the year succeeding to that in which the crop is grown."—Read, and agreed to.

Paragraph 5, read:—Amendment proposed, "To omit all the words from the second word, 'applications,' for the purpose of inserting the words, 'for the postponement of the hop duty, since the year 1800, have been very numerous, and in no less than 14 instances the Treasury has admitted the force of those applications, and deferred or remitted the payment'" (Sir *John Shelley*).—Question put, and agreed to.

Paragraph 5, amended, as follows: "The applications for the postponement of the hop duty since the year 1800 have been very numerous, and in no less than 14 instances the Treasury has admitted the force of those applications, and deferred or remitted the payment."—Read, and agreed to.

Paragraph 6, read. Question, "That the paragraph stand part of the Report," put and negatived.

On paragraph 7. Question, "That the paragraph be now read a second time" (Mr. *Knight*), put. The Committee divided.

Ayes, 5.	Noes, 6.
Mr. B. Blakemore.	Mr. Brand.
Mr. Beach.	Mr. W. Martin.
Sir E. Dering.	Mr. B. Hope.
Mr. Knight.	Sir J. Shelley.
Mr. Locke.	Viscount Pevensey.
	Mr. Bass.

So it passed in the negative.

Paragraph 8, read, and negatived.

Paragraph 9, read, and negatived.

Paragraph 10, read, and negatived.

On paragraph 11. Question, "That the paragraph be now read a second time," put. The Committee divided.

Ayes, 5.	Noes, 6.
Mr. B. Blakemore.	Mr. Brand.
Mr. Beach.	Mr. W. Martin.
Sir E. Dering.	Mr. Beresford Hope.
Mr. Knight.	Mr. Bass.
Mr. J. Locke.	Sir J. Shelley.
	Viscount Pevensey.

So it passed in the negative.

Paragraph 12, amended as follows: "Several, but by no means all, of the Weald of Kent and Sussex hop-growers, who have been examined, have expressed an opinion that hop-growing is a losing concern, and that the Excise duty is the principal cause of their difficulty, especially in years of abundant crops." Question, "That the paragraph so amended be agreed to. The Committee divided.

Ayes, 10.	Noes, 1.
Mr. Brand.	Mr. B. Blakemore.
Mr. W. Martin.	
Mr. B. Hope.	
Mr. Bass.	
Sir J. Shelley.	
Viscount Pevensey.	
Mr. Beach.	
Sir E. Dering.	
Mr. Knight.	
Mr. J. Locke.	

So it was resolved in the affirmative.

Paragraph 13, amended, as follows: "On the other hand, all the growers of the finer kinds of hops who have been examined, as well as several of the Weald of Kent and Sussex growers, have assured the Committee that in their districts hop growing has been in the long run a good and profitable business."—Read, and agreed to.

Paragraph

Paragraph 14, amended. Further amendment proposed, to omit all the words from the word "over production" to the end of the paragraph (Sir *J. Shelley*).—Question put. The Committee divided.

Ayes, 4.	Noes, 7.
Mr. Brand.	Mr. W. Martin.
Mr. Bass.	Mr. B. Hope.
Sir J. Shelley.	Mr. B. Blakemore.
Viscount Pevensey.	Mr. Beach.
	Sir E. Dering.
	Mr. Knight.
	Mr. J. Locke.

Further amendment proposed, to leave out the words "Your Committee believe," in order to insert the words "evidence has also been given" (Mr. *Knight*).—Question put, and agreed to.

Further amendment proposed, at the end of the paragraph, to insert the words "The accounts of prices of hops for an average of years in Bavaria, laid before Your Committee by different witnesses, do not sensibly vary from the prices of the best kind of hops in England, while the Belgians, regard being had to quality, show no material difference from our own inferior sorts" (Sir *J. Shelley*).—Question put. The Committee divided.

Ayes, 4.	Noes, 7.
Mr. Brand.	Mr. W. Martin.
Mr. Bass.	Mr. B. Hope.
Sir J. Shelley.	Mr. B. Blakemore.
Viscount Pevensey.	Mr. Beach.
	Sir E. Dering.
	Mr. Knight.
	Mr. J. Locke.

Paragraph 14, amended as follows:—"It appears, however, from the evidence taken, that, from the uncertainty of the crop, and from the very low prices that prevail in years of large production, hop-growing could hardly be carried on in England if the high prices of some particular years did not afford compensation to the grower for the want of profit, and even for the loss, which he periodically experiences, sometimes from blight, sometimes from over-production. Evidence has also been given to Your Committee, that if the Customs and Excise duties were equalised or abolished, the introduction of large quantities of foreign hops at low prices would prevent prices from ever rising sufficiently high to reimburse the British grower for the years of loss and failure, and that the consequence would, before long, be fatal to the cultivation of hops in England."—Read, and agreed to.

Paragraph 15 read, and negatived.

Paragraph 16 read. Amendment proposed, at the end of the paragraph, to add the words, "The accounts however of prices of hops for an average of years in Bavaria, laid before Your Committee by different witnesses, do not sensibly vary from the prices of the best kind of hops in England, whilst the Belgians, regard being had to quality, show no material difference from our own inferior sorts, and do not confirm such a supposition" (Sir *John Shelley*. Amendment, by leave, withdrawn.

Further amendment proposed, at the end of the paragraph, to insert the words, "However, the Committee guards itself from asserting that such a result would take place" (Mr. *B. Hope*).—Question put. The Committee divided.

Ayes, 8.	Noes, 3.
Mr. Brand.	Mr. Bass.
Mr. W. Martin.	Sir E. Dering.
Mr. B. Hope.	Mr. Knight.
Mr. B. Blakemore.	
Sir J. Shelley.	
Viscount Pevensey.	
Mr. Beach.	
Mr. J. Locke.	

Words added accordingly.

Question, "That the paragraph, as amended, be agreed to," put. The Committee divided.

Ayes, 10.	Noes, 1.
Mr. Brand.	Mr. B. Blakemore.
Mr. W. Martin.	
Mr. B. Hope.	
Mr. Bass.	
Sir J. Shelley.	
Viscount Pevensey.	
Mr. Beach.	
Sir E. Dering.	
Mr. Knight.	
Mr. J. Locke.	

Paragraph 16, amended as follows: "The immediate effect of large annual importations of foreign hops of fine quality would be, that many of the present chief consumers of the finest English hops would supply themselves largely with the foreign article; while those who now use the coarse British qualities would, in lieu of them, lay in their stocks of the finer sorts of English hops, which had been displaced by the foreign importations. However, the Committee guards itself from asserting that such a result would take place."—Read, and agreed to.

Paragraph 17 read, and negatived.

Motion made, "That the Chairman be directed to report to The House the Minutes of the Evidence taken before the Committee, with the Appendix" (Mr. *Wykeham Martin*).—Question put, and agreed to.

Motion made, "That the Chairman do now leave the chair" (Mr. *Wykeham Martin*).—Question put, and agreed to.

EXPENSES OF WITNESSES.

NAME of WITNESS.	PROFESSION or CONDITION.	FROM WHENCE SUMMONED.	Number of Days absent from Home, under Orders of Committee.	Expenses of Journey to London and back.			Allowance during Absence from Home.			TOTAL Expense allowed to Witness.		
				£.	s.	d.	£.	s.	d.	£.	s.	d.
Mr. Lawrence Reeve	Farmer	Peasemarsh, near Rye	1	1	2	6	1	1	–	2	3	6
Mr. Fredk. Webster	Esquire	Battle Abbey	1	1	5	6	1	1	–	2	6	6
Mr. Tylden Smith	Banker	Hurstgreen, Sussex	1	1	10	–	1	1	–	2	11	–
Mr. Henry Selmes	Farmer	Saint Leonards	1	1	7	–	1	1	–	2	8	–
Mr. Robert Tooth	Brewer	Cranbrook	1	1	11	6	1	1	–	2	12	6
Mr. Lawrence Reeve	Second summons	Peasemarsh, near Rye	1	1	7	6	1	1	–	2	8	6
Dr. S. Monckton	Medical practitioner	Brenchley	1	1	10	–	2	2	–	3	12	–
Mr. Thomas Neve	Farmer and appraiser	Staplehurst	1	1	10	–	1	1	–	2	11	–
Mr. Thomas Neve	Second summons	Ditto	1	1	10	–	1	1	–	2	11	–
Mr. P. S. Punnett	Farmer, thrice summoned.	Chart	3	2	5	0	3	3	–	5	8	–
Mr. William Carter	Farmer, twice summoned.	Boughton-under-Blean	2	3	–	–	2	2	–	5	2	–
Mr. James Harris	Farmer	Long Sutton, Hants	1	–	10	–	1	1	–	1	11	–
	Farmer	Yalding, Staplehurst	1	–	15	–	1	1	–	1	16	–
Mr. James Hartridge Mr. George Hammond	Brewer, twice summoned.	St. Mary Cray	2	1	–	–	2	2	–	3	2	–
Mr. J. P. Smith	Farmer	Lower Wych, Worcester.	3	2	12	–	3	3	–	5	15	–
Mr. William Taylor	Farmer	Showle Court, Hereford.	3	2	10	–	3	3	–	5	13	–
Mr. Benjamin Nichol	Esquire	Farnham	1	–	12	–	1	1	–	1	13	–
Mr. Jas. Mannington	Farmer	Hurst Green, Sussex	1	1	10	–	1	1	–	2	11	–
Mr. James Selmes	Farmer	Northiam, Sussex	1	1	1	6	1	1	–	2	2	6
		£.		28	9	6	29	8	–	57	17	6

MINUTES OF EVIDENCE.

LIST OF WITNESSES.

	Page
Jovis, 11° *die Junii*, 1857.	
Charles Pressly, Esq., and Thomas Dobson, Esq.	1
Mr. Lawrence Reeve	18
Lunæ, 15° *die Junii*, 1857.	
Frederick Webster, Esq.	31
Tilden Smith, Esq.	47
Mr. Henry Selmes	61
Lunæ, 22° *die Junii*, 1857.	
Mr. Robert Tooth	67
Mr. Lawrence Reeve	95
Jovis, 25° *die Junii*, 1857.	
Dr. Stephen Monckton	100
Mr. Patrick Simpson Punnett	118
Lunæ, 29° *die Junii*, 1857.	
Mr. Thomas Neve	133
Mr. Patrick Simpson Punnett	143
Mr. William Carter	154
Mr. John Kenward	162
Jovis, 2° *die Julii*, 1857.	
Mr. George Hammond	166
Mr. James Harris	179
Mr. James Hartridge	183
Samuel Lancaster Lucas, Esq.	189
Lunæ, 6° *die Julii*, 1857.	
Major Edward Curteis	198
Mr. Henry Bannerman	212
Mr. George Hammond	221

	Page
Jovis, 9° *die Julii*, 1857.	
Mr. John P. Smith	223
Mr. William Taylor	236
Mr. Ben Nichols	243
Mr. Isaac Mannington	249
Mr. James Selmes	251
Lunæ, 13° *die Julii*, 1857.	
Mr. George Oyler Thirkell	254
Mr. Thomas Robert Cutbush	263
Mr. Charles Leney	268
Mr. Henry T. Smith	273
Jovis, 16° *die Julii*, 1857.	
George Darby, Esq.	276
Mr. Henry Tilden Smith	292
Mr. Robert M. Evans	295
Lunæ, 20° *die Julii*, 1857.	
Mr. George Gibson Richardson	301
Mr. William Harryman	321
Mr. Henry John Whitling	331
Jovis, 23° *die Julii*, 1857.	
George Darby, Esq.	335
Mr. Henry John Whitling	337
Mr. Thomas Waterman	345
Mr. John Nash	359
Michael Thomas Bass, Esq., M.P.	362
Jovis, 30° *die Julii*, 1857.	
Samuel Lancaster Lucas, Esq.	366
Charles Pressly, Esq.	392
Frederick St. John, Esq.	395
Mr. Thomas Parkes, Jun.	396
Michael Thomas Bass, Esq., M.P.	400

MINUTES OF EVIDENCE.

Jovis, 11° *die Junii*, 1857.

MEMBERS PRESENT.

Mr. Ball.	Mr. Beresford Hope.
Mr. Bass.	Mr. Knight.
Mr. Blakemore.	Mr. John Locke.
Mr. Brand.	Mr. Wykeham Martin.
Sir Edward Dering.	Viscount Pevensey.
Mr. John George Dodson.	Sir John Shelley.
Mr. Hanbury.	The Chancellor of the Exchequer.

JOHN GEORGE DODSON, Esq., IN THE CHAIR.

Charles Pressly, Esquire, and *Thomas Dobson*, Esquire, called in; and Examined.

C. Pressly, Esq. and *T. Dobson*, Esq.

11 June 1857.

1. *Chancellor of the Exchequer*] (To Mr. *Pressly*.) YOU are Chairman of the Board of Inland Revenue?—I am.

2. In the different offices you have held in connexion with the revenue, have you had occasion to become acquainted with the nature and operation of the Excise duty on hops?—I have.

3. When was that duty first imposed?—It was first imposed in 1711, at the rate of 1 *d.* per pound. It remained at that rate till 1778, when 5 per cent. was added. In 1780 an additional 5 per cent. was imposed; and in 1783, a further 5 per cent., making 15 per cent. It remained at this rate till 1786, when it was settled by the 27 Geo. 3, at a penny and 12-20ths of a farthing per pound, that being the same amount as 1 *d.* and 15 per cent. In 1802 it was increased to 2 ½ *d.* in the pound; in 1805 it was reduced to 2 *d.*; and in 1840 an addition was made of 5 per cent., at which it now remains.

4. What are the periods at which the duty is charged and collected?—Prior to 1820, the whole duty of the preceding year's growth was collected at the expiration of six months after the charge was made, namely, about the months of April or May; but in 1820 the collection of the duty on the growth of 1819 was postponed till the month of September, under the directions of the Treasury. In the following year the same extension was granted; and in 1822 the payment of the duty upon the growth of 1821 was extended till the 10th of October of that year. In 1823 an extension was granted to the 1st of September, and the payment for that year was further postponed to the 10th of October 1823; and again, the payment of the whole of the duty was postponed till the 1st of April 1824; and finally, one-half of the duty was remitted, and the payment of the other half was deferred till the 30th of November 1824, that also being done under Treasury directions. No extension of credit took place, beyond the six months which was allowed by law, for the three following years; but in 1827 the duty for the year 1826 was directed to be paid by three instalments, on the 14th May, the 14th November, and the 14th of December. In 1828 the period was extended, and the duty was paid in two instalments, on the 10th August and the 14th November. No alteration was made in 1829; but in 1828 the payment of one moiety of the duty was postponed till the 10th October 1829, and that of the other moiety till the 1st March 1830. In 1830 no extension was granted beyond the six months. In 1831 the payment of the second

C. Pressly, Esq. and *T. Dobson*, Esq.

11 June 1857.

moiety was postponed till the 15th September 1831. In 1832, by the Act 1 & 2 Will. 4, c. 53, the duty was directed to be collected, one moiety on the 1st of March, after the duty was charged, and the other moiety on the 1st of October. No alteration took place in the five following years; but in 1838 credit for the payment of the first moiety of the duty was extended to the 15th May, and of the second moiety to the 15th of November. No extension of credit beyond that period was sanctioned until the year 1848, when the first moiety, which was payable on the 15th of May 1849, was postponed to the 15th of October; and the second moiety, payable on the 15th November, was postponed to the 3d October 1850, and further to the 15th November 1850. No extension of time has been granted since that year till the present year, when the first moiety, payable on the 15th May, was postponed, by Treasury direction, for two months.

5. Is it your opinion that the law as it stands at present, by which the first moiety of the duty is payable in May, and the second in October, works well for the accommodation of the trade?—I apprehend it does. I know nothing to the contrary.

6. Has it ever occurred to you to consider whether the plan of receiving hops into bond, and not collecting the duty till they are taken out of bond, could be adopted?—We have considered the case, and considerable difficulties have presented themselves to my mind. Mr. Dobson, who has had much more experience than I have had in the bonding system from the long period he has been in the Excise, could better answer that question than I can.

7. (To Mr. *Dobson*.) What is your opinion upon that point?—It can be easily managed, but there will be considerable expense attending it from the nature of the arrangements. We should require a great number of warehouses in different parts of the country, and those would have to be provided, I presume, at the cost of the planters; and we should require at least 200 additional officers to work the warehousing system, which would be an expense of 20,000*l.* a year.

8. Is it your opinion that, however desirable the plan might be, the magnitude of the duty would hardly justify the necessary expense?—I should imagine that the expense to the revenue would be at least the sum I have stated; the expense I apprehend will also be very considerable of preparing those warehouses.

9. (To Mr. *Pressly*.) What is to be considered as the ordinary annual produce of the present hop duties?—It varies considerably. The paper which I have in my hand shows the quantities charged, and the amount and rate of the duties, in each year from their imposition till the year 1856, and it varies exceedingly. In the year 1854 there were 9,877,000 lbs. weight brought to charge, but in the following year there were 83,221,000 lbs., and in the last year there were 55,868,000 lbs.; so that it varies very considerably. In 1840 the number of pounds was only 7,114,000; in 1841, 30,504,000; in 1842, 35,432,000; in 1843, 27,862,000; and in 1846, 50,704,000.

10. Mr. *Bass*.] Are not the variations still more extensive in the different parishes?—I have a list of the amount of weight charged in each parish in the Canterbury and Rochester collection. This return is only for the last year.

11. *Chancellor of the Exchequer*.] Have you completed your statement as to the annual produce of the hop duties?—Yes, I have.

12. What would you consider to be about the average annual produce of the hop duties?—The average annual produce for the last three years is 434,485*l.*; that is the whole duty.

13. Will you state to the Committee what are the regulations under which this duty is charged and collected?—Every hop planter is required before the 1st of August in each year to deliver a statement in writing to the Excise officer of the district in which his hop grounds are situated, setting forth the number of acres under cultivation, and the names of the parishes or places in which they are situated. Before he begins to pick any hops, he is required to deliver to such officer a statement of all oasts, kilns, storehouses, or other places to be used by him for drying, keeping, and storing hops. These places are to be marked with a letter or figure painted in large and distinct characters on a conspicuous part of the building to the satisfaction of the supervisor of Inland Revenue, and all his hops must be brought to be dried and weighed at those places. The staff of Excise officers not being sufficient to secure the

the duty, a number of additional officers are sent to the several hop counties in the month of August in each year to assist the supervisors in their duty. These are called hop assistants, and they amount in number to between 260 and 270, according to the growth of hops; they are under the superintendence of the established officers of the Excise; their pay is at the rate of 85 *l.* a year for the period that they are so employed, which averages about three months in the year. The business of these persons, until the hops become ripe, is to make themselves well acquainted with the locality of the grounds, oasts, storehouses, &c., within their respective surveys, and to prepare their books. About the middle of September the hop-picking commences. The hops are thrown into baskets or binns, and carried to the oasts or kilns to be dried. During this process the grounds are watched by the officers to prevent any hops being clandestinely taken away: when dry the hops are removed from the oasts or kilns to an adjoining chamber, where, having lain a few days so as to imbibe a sufficient quantity of atmosphere to make them tough and to allow of their being packed closely without injury, they are put into bags or pockets, and trodden tightly down. This process is watched by the officer, to whom, in the first week, 24 hours, and afterwards 48 hours' notice of bagging is required to be given. The pockets or bags are required to be marked on the outside with the grower's name, and the parish and county and year in which grown, with letters and figures of a certain size. Notice is also required to be given to the officer of weighing; and the time must be between four o'clock in the morning and five in the evening. After weighing, the officer must mark or paint on the outside of each bag or pocket in legible letters, with durable ink, the gross weight, the date on which weighed, and the progressive number, according to the number weighed by each planter. On the gross weight an allowance of 10 per cent. is deducted for the tare of the bag or pocket. The hops are not to be removed from the place until twelve hours after being weighed, unless in the meantime re-weighed by a supervisor. The weights are entered by the officer in his survey book, and are aggregated and completed, and are afterwards added up and checked by the supervisor. A return of the aggregate quantity and amount of the duty charged on each grower is made to the Board, which is the legal assessment on the party; and the duty becomes payable, half on the 15th of May, and the second half on the 15th of November following; to collect which, in the large districts, special receipts are held. The planters are subject to penalties, varying from 40 *s.* an acre to 200 *l.*, and the forfeiture of their hops, for non-compliance with the regulations, or obstructing the officers in the performance of their duty. Those are the regulations under which the duties are, in the first instance, charged, and ultimately collected.

14. These regulations do not affect the production of the article, nor do they come into force until the hops have been picked?—Certainly not.

15. Are they of such a nature as to be inconvenient and harassing to the grower of hops?—I apprehend not.

16. Are they ever made the subject of complaint?—I have never heard any complaint since I have been at the Board. Mr. Dobson, who has been many more years there than I have, may have heard of some complaint.

17. (To Mr. *Dobson*.) Did you ever hear of any complaint upon the subject?—I never heard of any complaint.

18. Have not you been for a long time a public officer of Excise?—Yes. I have not been engaged in collecting the hop duty, but I have had the management of sending out the officers to collect it for the last few years, and I have not heard any complaint.

19. Do you believe, in the manner the duty is collected, that there is any considerable portion of the hops produced which evade the duty?—I do not think there is any evasion.—(Mr. *Pressly*.) I never heard of any evasion. The duty is closely collected, and very little loss has been sustained since I have known anything of the Excise Board.

20. Will you state what is the per-centage of the expenses of the collection upon the duty received?—In 1854 the expenses were 3,257 *l.*; in 1855, 4,492 *l.*; in 1856, 3,790 *l.*; making an average of 3,846 *l* a year. The expense of collection, therefore, is about 17 *s.* 8 *d.* per cent.

21. Can you state what is the per-centage of the duty upon the ordinary

C. Pressly, Esq. and *T. Dobson*, Esq.

11 June 1857.

price of hops?—I have known it as high as 2 *s.* 6 *d.* a pound; it is frequently 2 *s.*—(Mr. *Dobson.*) I think the ordinary price may be taken at about 6 *l.* a cwt.; in that case the per-centage of duty would be from 14 to 15 per cent. That is the price I am assuming as the average.

22. (To Mr. *Pressly.*) Is there not also a Customs duty upon foreign hops?—There is.

23. What is the amount of that duty?—Four-pence three-farthings a pound, or 45 *s.* a cwt.

24. What proportion does that bear to the Excise duty?—It is more than double.

25. Can you state what would be the amount of the importation of foreign hops in recent years?—(Mr. *Dobson.*) I have a return showing the importation of the last 10 years.

26. Mr. *Bass.*] To what date does that return come up?—It is for all the years from 1846.

27. Ending in December?—Ending in December. In 1846 the importation was 1,150 cwt. The Customs accounts are all kept in hundred weights; and we keep ours in pounds. In 1847 the quantity was 2,190 cwt.; in 1848 the quantity was 5 cwt. only.; in 1849 it was 3,453 cwt.; in 1850, 5,412 cwt.; in 1851, 27 cwt.; in 1852, 133 cwt.; in 1853, 22,570 cwt.; in 1854, 101,787 cwt.; in 1855, 38,510 cwt.; and in 1856, 10,610 cwt.

28. *Chancellor of the Exchequer.*] In 1854 the Customs duty was suspended, was it not?—It was reduced to 1 *l.* a hundred weight.

29. (To Mr. *Pressly*). For what period did that reduction last?—From the 8th of August 1854 to the 1st of August 1855.

30. What was the ground of that temporary reduction of the Customs duty?—I apprehend that it was the short crop in this country.

31. Was not there an increased importation during that year?—So it appears from the statement which I have read.—(Mr. *Dobson.*) The importation was very large that year; the average importation is about 18,000 cwt. for the period spoken of. In the year ending August 1855 the importation was 101,000 cwt.

32. Do you know anything of the comparative qualities of British and foreign hops?—I merely know it by hearsay. It has been stated to us that some of the Belgium hops are very good, equal to the best English, and bring a high price.

33. What are the districts of England to which the cultivation of hops is confined?—Kent and Sussex are the counties in which the cultivation is carried on to the greatest extent; next to these are Hereford and Worcester.

34. (To Mr. *Pressly.*) Are no hops grown in Hampshire?—Yes; 1,949 acres are grown in Hampshire.

35. Was not there at one time a duty upon beer, as well as a duty upon malt and hops?—There was.

36. Was not that duty repealed?—The duty upon beer was repealed on the 10th of October 1830.

37. Do you know what was the ground upon which that repeal took place?—No, I am not aware; it was so many years before I came to the Excise that I do not know.

38. Do not the duties upon malt and hops practically amount at present to a duty on beer?—They do.

39. Do you believe that there is any foundation for the opinion which is entertained by some persons, that the duty on hops falls upon the producer and not upon the consumer?—(Mr. *Dobson.*) I should apprehend that it falls upon the consumer.

40. Do you believe that if the duty on hops was taken off, the benefit would accrue to the grower and not to the consumer of hops?—No; the benefit would reach the consumers.

41. Does not the same rule apply to the malt duty; is not it a duty which falls upon the consumer of malt, and not upon the grower of malt?—Certainly.

42. What do you conceive to have been the reason why, when those three duties existed, the duty upon beer was abolished and the duty on malt and hops were retained; why was not the reverse course adopted, of abolishing the duty upon malt and hops, and retaining the duty upon beer?—There are many revenue reasons for the course that was adopted. The means of evasion

are

are more easy in the case of beer; and the difficulty of collecting the duty on beer was greater than that of collecting the duty upon malt; and at the time there was a great pressure to have the beer duty taken off.

43. Do you happen to know whether the duty upon beer, when it existed, was levied upon private brewers as well as upon brewers for sale?—It was not.

44. Was it not therefore a partial duty, levied only upon persons who brewed beer for sale?—It was levied only upon persons who brewed beer for sale, and one strong argument for the repeal was its partial operation.

45. If an attempt were made to substitute a single duty upon the manufactured article of beer for the duty upon malt and hops, would it not be necessary to levy the duty upon the private brewers as well as upon the public brewers?—I should imagine so; it would be unfair otherwise.

46. Do you think that would be practicable?—Not by means of the ordinary Excise survey. I apprehend that the gentlemen of England would not willingly admit the officers daily into their houses, for the purpose of taking account of the beer made. The only practical method, according to my idea, is to charge it upon the brewer for sale in the ordinary way, by visits of the officers, and to take the declaration of private brewers as to the quantity brewed.

47. Is not there a considerable quantity of beer brewed by publicans?—Not much considered relatively to the total consumption.

48. Do you think that those who brew beer privately, if we may say so, are principally private gentlemen or farmers?—There is a good deal brewed by farmers.

49. Can you state what the rate of duty upon beer was at the time when it was repealed?—The duty was 9 *s.* 10 *d.* a barrel of 36 gallons on strong beer; 1 *s.* 11½ *d.* per barrel on table beer; and 4 *s.* 11 *d.* on intermediate beer.

50. Can you state the produce of the beer duty during those years?—It produced about 3,000,000 *l.* a year; in the last year I see it is 3,055,000 *l.*

51. (To Mr. *Dobson.*) What was the rate of the malt duty at that time as compared with the present time?—At the time of the repeal of the beer duty the rate of the malt duty was 2 *s.* 7 *d.*, the same as it is now, with the exception of the 5 per cent.

52. The duty upon malt was 5 per cent. less than it is at present?—Yes.

53. And the duty upon hops was the same?—Yes.

54. (To Mr. *Pressly.*) Therefore in 1829, assuming that the duties on malt and hops were practically a duty upon beer, beer was more heavily taxed than it is at present?—Certainly.

55. Can you furnish the Committee with a comparison of the produce of the three duties of malt, hops, and beer at that time, with the produce of the malt and hop duty at present?— Yes, it is as follows:

		£.
The net receipt in 1829 on -	Malt was - -	3,814,305
	Hops - - -	242,658
	Beer - - -	3,055,453
		£. 7,112,416
For the year ended 31 March last, on	Malt - -	5,690,949
	Hops - -	712,035
		£. 6,402,984

56. Comparing the duty upon beer, assuming that it is made up of the duty upon malt and hops, with the duty upon spirits, is beer now heavily taxed in proportion to spirits?—It is not so heavily taxed as spirits.

57. (To Mr. *Dobson.*) What do you consider, by the present law, to be the duty upon beer?—I believe that a barrel of such beer as the ordinary London porter would require two bushels of malt to brew it, and two bushels of malt pay a duty of nearly 5 *s.* 6 *d.*

58. How much hops would it require?—The quantity of hops varies very much, from 1 ½ lb. a barrel to six, seven, or eight pounds. I should say that the duty upon such beer was about 6 *s.* a barrel, including the duties upon malt and hops.

 59. What

C. Pressly, Esq. and *T. Dobson*, Esq.

11 June 1857.

59. What could be taken as about the average price of a barrel of beer of the quality you have described?—Thirty shillings, I should suppose.

60. Therefore the proportion of the duty upon beer to its value would be as 6 to 30?—Yes.

61. Can you compute the per-centage of the present duty upon spirits?—Common whisky is now selling at 2 *s.* 4 *d.* a gallon. The duty upon it is 8 *s.*

62. Therefore the duty on spirits is considerably higher, as compared with the price, than the duty on beer?—Yes; very much higher. The per-centage of duty on spirits ranges from 250 to 350 per cent. on the average prices.

63. How is the duty on beer as compared with the duty on wine; do you not take the duty on wine at 1 *s.* a bottle?—Yes, as near as possible.

64. Therefore there is no great difference between the per-centage of the duty on wine and that on beer?—The qualities of wine are so various, I cannot state the average per-centage on wine.

65. *Chairman* (To Mr. *Pressly.*)] Did not you state that the duty on hops was increased in 1803?—Yes. I said before, that in 1802 it was increased from 1 *d.* and 15 per cent. to 2 ½ *d.* upon the pound.—(Mr. *Dobson.*) The Act was the 43d of George the 3d passed in 1803.

66. (To Mr. *Pressly.*) Was not 1803 the year when the war with France broke out?—Certainly.

67. Was not the duty lowered in 1805?—Yes.

68. Do you know on what grounds that was done?—No, I do not.

69. You do not know the reason why, the duty having been raised the first year of the war, it was so immediately afterwards brought down again?—No, I do not; I have not the least idea.

70. Will you state why the duties are still divided in the returns into the old and the new duties?—I have not the least knowledge why it is done. Every return is made out with the old duty and the new duty; the old duty is 1 *d.* and 12-20ths of a farthing, and the new duty is three-farthings and 8-20ths of a farthing. When it was 2 *d.*, an additional 5 per cent. was imposed, amounting to 4-10ths of a farthing, and the duty has remained at that amount; it is in point of fact 2 *d.*, and 4-10ths of a farthing, that is to say, a duty of 2 *d.* and 5 per cent. Mr. Dobson may possibly be able to state why these two rates are kept on foot.—(Mr. *Dobson.*) I know that the planters say that they have kept up the distinction between the old duty and the new, under the idea that by-and-by the Government would come back to the old rate.

71. Is that the reason why all your accounts are kept in this seemingly unnecessarily complicated manner?—I do not know. The returns got first into that track as it was supposed to be a temporary duty, and I suspect they have been kept so ever since.

72. Are the officers visiting the grounds and out-houses at liberty to walk in at any time of the day and night?—Not the hop assistants; the established officers and supervisors are.

73. Are the supervisors at liberty to come in at any time?—They may at any time; I think the others are only authorised to enter between four in the morning and five in the evening.

74. And you said that the grower was bound to give so many hours' notice before beginning the operation of packing. When he gives notice is the officer bound to attend?—Yes.

75. Have you such an amount of officers that the growers will never be put to any inconvenience by delay?—No serious inconvenience; they may occasionally suffer a little. We have no complaints from them on that subject, and therefore I infer that they have no great reason to complain.

76. Is any security required for the payment of the duty?—None whatever.

77. Is not there any security required in the case of the malt duty?—The maltsters give bonds with sureties to obtain 18 weeks' credit.

78. Is nothing required from the hop growers?—Nothing whatever.

79. Is not the duty payable, half at six months from the time it is charged, and the other half in a year?—Yes; the first half is paid on the 15th of May, and the other on the 15th of November, and the charge is completed by about the 15th of October; so that there is 13 months' credit. The amounts are sent in, and the charge is completed and placed in our books at least a month before the charge is actually sent out.

80. *Chairman.*] Then, supposing the planter to sell his hops at once after the

the duty is charged, has he not in his hands for six months the whole of the duty which he owes to the Government?—Yes; and one-half for six months more.

81. Then, in fact, he gets not only the price of his hops, but a sum of money into his hands to trade with for a whole year?—He does.

82. Supposing he has 50 acres of hops, producing 10 cwt. an acre, would not he get 500 *l.* belonging to the Government in his hands for six months?—Yes, nearly.

83. And half of it for 12 months?—Yes.

84. Is not that a bait to a man who has little capital to enter into hop growing?—Yes, no doubt it must operate to some extent in that way, and tend to encourage some degree of improvidence. I fear that the money is often spent before the claim for the duty is made.

85. (To Mr. *Pressly*.) I think you said it was an exceedingly precarious crop, as was evidenced by the amount of duty from year to year?—Certainly.

86. Are not hops only used for making beer?—For no other purpose, except in small quantities, medicinally.

87. Is not that only an inappreciable quantity?—Quite so.

88. Is not the consequence of that, that the demand is limited by its requirements for beer?—Certainly.

89. Hops not being a manufactured article, the producer has no control over the amount produced?—None at all.

90. And is there not consequently always a danger of there being a glut or a deficiency in the market simply from natural causes?—Quite so.

91. Supposing there is an abundant year of large crop, and consequently a glut in the market, is not the duty heaviest in such a year?—Certainly.

92. Must not the planter have a certain sum of money to meet you on a certain day in the year?—He must.

93. He must sell his hops to meet your demand, whatever may be the price they are selling at?—Certainly.

94. Would not the natural course of things be this, that in abundant years a man would hold back his supply for a scarcity?—Certainly.

95. Must not your demand upon him for a large sum of money necessarily interfere with that?—It does.

96. Would not the tendency be this, that he will be obliged to sell his hops at a loss, supposing that it is an abundant year and the price of hops is low, to meet the duty at that time?—Yes.

97. Mr. *Beresford Hope*.] At least when there were two good years together the grower might, in the second year, have to sell at a great loss, to pay the duty of the year before?—That would be the effect, certainly.

98. Mr. *Bass* (To Mr. *Dobson*.)] You are aware that a depreciation takes place in the value of the hops between the end of one season and the beginning of another. Taking the whole of the hops in the manner you have already done it, and considering the average crops in ten years and no hops, what would you say would be the depreciation in value between May and November?—I could not venture to say.

99. *Chairman* (To Mr. *Pressly*.)] You were asked whether you thought that in a particular state of the market, after several successive years of large produce, the producer would be likely to be compelled to part with the hops to the dealer at a loss: could you answer that question?—I apprehend he would.

100. Mr. *J. Locke*.] Would not that depend upon what capital the planter had?—Yes.—(Mr. *Dobson*.) In the case specified there must be a loss, but I believe that seven-eighths of the crop is always disposed of very early in the season.

101. *Chairman* (To Mr. *Pressly*.)] When the price of hops is low, and in consequence of the depreciation which takes place, a man would naturally hold the whole or some portion of his hops till next year, the Government make a demand upon him for the duty; is not the natural tendency of that to make it necessary for the man to sell, to raise the sum of money to pay the Government?—Yes, if he has not other means in his possession.

102. Is not the tax imposed by the Government in a way which compels him to have so much more capital, inasmuch as he has to contend, not only with

C. Pressly, Esq. and *T. Dobson*, Esq.

11 June 1857.

the low price of the hops, but with a heavy duty?—That would be so, but the duty upon hops has been about the same rate from 1805 up to the present time.

103. Must not that be the effect upon the grower in an abundant year?—Quite so.

104. Mr. *Knight*.] Could not he easily borrow the money upon the crop?—I apprehend that he could borrow the money upon the crop as it is so small a portion of the whole value.

105. Mr. *B. Blakemore*.] Do you know whether the number of acres of hops cultivated has of late increased or decreased?—I cannot answer the question. We have the number of acres under cultivation. I have only the return for 1856.

106. (To Mr. *Dobson*.) Is the acre the same throughout your returns, or are there various modes of calculating the acres?—It is the statute acre throughout.

107. It is all brought to statute acres?—Yes.

108. As to the effect of the duty upon the consumer, will you state what is the amount of duty which falls on the consumer per gallon of ordinary beer?—In ordinary beer the quantity of hops used would be about two pounds to 36 gallons, and the duty would be 4*d*.

109. Mr. *Bass*.] Is not that upon the assumption that there is only two pounds of hops used to a quarter of malt?—I speak of a barrel of ordinary beer.

110. Are you aware that in some instances 20 pounds a quarter are used?—Yes, in the best beer. I do not doubt that that quantity is used.

111. Mr. *B. Blakemore*.] So that the duty that a consumer pays upon a gallon of ordinary public-house beer would be 4 *d*. for 36 gallons?—Yes; we have no direct means of knowing that fact; to the best of our information that is the case.—(Mr. *Pressly*.) I have put two pounds of hops to every bushel of malt.

112. Mr. *Bass*.] Is not that 12 times as much as Mr. Dobson gave?—To strong beer, that had to be kept, I have put two pounds of hops; but mine of course is a very small consumption.

113. (To Mr. *Dobson*.) Could you not, by comparing the growth of hops with the quantity of malt manufactured in a year, form a comparison between the relative amount of hops and malt used in the manufacture of beer?—Yes, it could be brought out in that way. But the quantity of low-priced beer is so very large, that it would be difficult to come to a correct conclusion of the average per barrel.

114. Mr. *B. Bakemore*.] Do I rightly understand you to say that the cost on the consumer of beer in public-houses, or a private person who brews in his own house, is 4 *d*. upon 36 gallons?—Yes, upon the low quality of beer sold at public-houses.

115. Mr. *J. Locke*.] You stated that the duty upon 36 gallons of porter would be 6 *s*.?—Yes.

116. How much of that would be the duty upon malt?—From 5 *s*. 6 *d*. to 5 *s*. 8 *d*.

117. And the remaining 4 *d*. or 6 *d*. upon the hops?—Yes; I estimate the quantity of malt for that description of beer at two bushels a barrel.

118. *Chairman*.] (To Mr. *Pressly*.) Did not you state that numerous postponements of the payment of the duty had taken place?—I did.

119. Did not those generally happen in the years of the greatest abundance?—They did. In the year 1808, when the payment of the duty was deferred beyond the time, I see that the produce of that year was 52,000,000 of pounds weight, and in the year 1819 it was 50,500,000; in 1822 it was 42,549,000. In the following year no extension of the time was allowed, the produce being very small, 5,434,000. The postponements generally appear to have been made when the produce has been beyond the ordinary quantity.

120. Considering the large amount of duty payable this year, coupled with the low prices arising from the abundance of hops in the market, would not a man need to be a large capitalist in order to carry on business in such a year as this?—Certainly.

121. Is not the effect of the duty, therefore, to confine the business to men of large capital?—That is the effect, certainly.

122. Must not that militate against the man of less means as compared with the capitalist?—Undoubtedly.

123. Does

123. Does not it increase the risks and expenses of the cultivation, which are naturally very precarious?—No doubt of it; such is the effect.

124. Did not you state, in answer to a question put to you by the Chancellor of the Exchequer, that the amount of duty was so small that it would not be worth while to incur the expense of bonding?—Mr. Dobson explained that the expenses of bonding would be very great.

125. (To Mr. *Dobson*.) What number of persons come under the survey of the Excise?—From 6,000 to 7,000.

126. Will you state the number in the different collections in connexion with the hop duties?—I will send in a return.

127. How many persons come under the survey of the other Excise duties; the malt duty for instance?—There are about 10,000 maltsters, I think.

128. What number of paper mills are there?—There would be above 390 paper makers.

129. Mr. *Bass*.] What is the number of distillers?—The distillers are about 250 in number. I am speaking now of the makers of spirits.

130. What is the number of rectifiers?—I do not recollect the number, but I should scarcely take them to be under Excise supervision, because no spirit duty is levied upon them.

131. What are the other Excise duties?—There are no other Excise duties, except those upon malt, paper, and spirits.

132. Is there no Excise duty upon English-made wines?—No.

133. *Chairman*.] Are these supervisors appointed from other departments of the Excise at the time of the hop picking?—They are; officers are appointed to act temporarily as supervisors.

134. (To Mr. *Dobson*.) In other departments of the Excise, are the same officers appointed in different branches of the Excise—for instance, do you employ temporary supervisors during other times of the year in other duties?—Yes, we employ the temporary hop supervisors in other duties.

135. So that the expense of collecting the hop duty is confined to hop assistants?—Quite so.

136. So that if there were no hop duty the expense, whatever it is, would be entirely swept away?—Entirely.

137. In that case the officers required to collect it would not be needed?—Quite so.

138. Would not the whole amount of expense incurred in the collection of the duty be done away with under those circumstances?—Yes.

139. Are there any hop assistants on the Superannuation Fund?—None whatever; they are paid at the rate of 85 *l.* a year.

140. Is there any duty on the hop grown in Ireland?—None. I do not think that hops are grown in Ireland.

141. If hops were imported from Ireland, would they pay a duty like foreign hops?—(Mr. *Dobson*.) Hops imported from Ireland would pay a countervailing duty, equal to the duty levied here; but such a thing has never occurred.

142. Is there not a drawback allowed upon hops exported from this country?—There is a drawback allowed upon hops exported.

143. Is it to a large amount?—To the amount of the duty, I apprehend.

144. *The Chancellor of the Exchequer*.] Are any hops, in fact, exported?—Yes.

145. Will you state to what extent they are exported?—The Report made to the House of Commons on the 12th of May 1857, shows that from the 1st of January to the 1st of June 1856, 534,255 lbs. weight was exported, and from the 1st of July to the 31st of December, 1,310,014.

146. To what countries were those hops exported?—To various places; to Amsterdam, Boulogne, Cadiz, Cape of Good Hope, Hobart Town, Jersey, Australia, and various other places.

147. *Chairman*.] Is it much exported to the Australian colonies?—Yes; 328,886 lbs. were exported to Sydney in the year 1856, and about 1,000,000 lbs. to other parts of those colonies.

148. *The Chancellor of the Exchequer*.] Were those hops exported in an unmanufactured state?—They were exported in a state fit for use. They were put up in bags.

149. Mr. *Bass*.] Supposing beer to be exported, is there any drawback upon the hops used in the manufacture of the beer?—There is a drawback upon beer exported.

C. *Pressly*, Esq, and T. *Dobson*, Esq.

11 June 1857.

150. (To Mr. *Dobson.*) Is the hop duty computed in that drawback?—No; the drawback only covers the malt duty.

151. *The Chancellor of the Exchequer.*] How is that duty computed?—The brewer who is about to export beer makes a calculation, stating that it was brewed at a certain specified gravity, and the beer is examined on exportation, and the drawback is computed under the Act of Parliament, according to the gravity at which the beer was brewed.

152. Mr. *Bass.*] According to the computation of the quantity of malt used?—Yes.

153. *Chairman.*] Is any allowance made for the hop duty?—None.

154. What is the quantity of beer annually exported from this country?—It has grown very much within the last few years. The quantity exported in 1849 was 129,000 barrels; in the year 1855 it was 385,000.

155. (To Mr. *Pressly.*) Is the drawback paid upon hops that are exported from this country, however old they may be?—Yes; there were some hops exported between the 1st of July and December last, of the growth of 1848. —(Mr. *Dobson.*) The drawback is allowed, subject to the condition that the hops are marketable.

156. (To Mr. *Pressly.*) Supposing the brewer sold his hops for export as soon as they were bagged, would he receive from the Government in hard money a sum per ton, equal to the value of the Excise duty that he would have to pay 12 months afterwards?—I apprehend he would.

157. Would the Government actually put that sum of money into his hands?—Yes, if the hops were exported.

158. (To Mr. *Dobson.*) Are you aware if an additional quantity of hops increases the gravity of the beer?—Not to any appreciable extent.

159. Mr. *Bass.*] I think you have stated the duty upon hops grown in this country to amount to something like 19 *s.* 6 *d.* a cwt., will you inform the Committee what allowances are made as deductions from that duty?—The only allowance on hops grown in this country is 10 per cent. for bagging.

160. Is there no allowance of weight?—There is no allowance whatever beyond the 10 per cent.

161. Was there not within the last two years an allowance of two pounds for what was called the draught?—There was nothing allowed beyond the 10 per cent. for package.

162. Has not it been the custom to allow two pounds a cwt. on that account?—The positive instruction to the weighers has been, that they are not to allow an ounce beyond the 10 per cent.

163. Taking this allowance into account, what is the amount of the Customs duty as compared with the Excise duty upon English hops?—The 10 per cent. is to cover the package, and in some cases probably the 10 per cent. will not do more than that.

164. What is the weight of a package?—A pocket would not exceed four pounds.

165. And what is the average weight of the hops contained in a package?—A hundred weight and a half.

166. The weight of a sack is four pounds, and it contains a hundred weight and a half, which is 168 lbs., so that the weight of the sack is only a little over two per cent. of the weight of the package, whereas you allow 10 per cent. for package; do you not therefore, in fact, allow eight per cent., or thereabouts, out of the total charge of 19 *s.* 6 *d.*, and must not that be taken off before you get the one duty to which foreign hops are liable when imported into England?—There must be a deduction to the extent of from six to eight per cent., to get the net duty payable on English hops in pockets.

167. (To Mr. *Pressly.*) What is the tare on foreign hops?—I sent to the Customs, and I was informed that on kiln-dried hops it is about four per cent.; on other hops, about 16 per cent.; that is the answer I got from the Customs.

168. What is the proportion of kiln-dried to other hops?—I cannot answer that question.

169. Are you aware whether any hops are imported into this country that are not kiln-dried?—I am not aware; that is a question for the Customs.

170. May we take it, that on kiln-dried hops the allowance for tare is 4 per cent.?—So it is stated in the letter which I received from the Customs.

171. (To Mr. *Dobson.*) Must we not, in order to make a true comparison between the duties on foreign and English hops, deduct 8 per cent. from the English

English duty, and 4 per cent. from the foreign duty?—Eight per cent. must be deducted from the English duty; the foreign is supposed to be charged net.

172. You spoke of the average price of hops, as about 6 *l.* a cwt. Do you undertake to speak positively as to that?—No; but judging from the list of prices, which goes back some years, I think it is about that.

173. Had you, when you gave that answer, any relation in your mind to the prices of old hops, or did you speak wholly as to new ones?—I speak from the list of London prices for a number of years back, and those prices have reference to new hops only, as I understood the paper.

174. Have you not stated, that you begin to charge the duty generally about the 15th of September?—Yes; about that time.

175. And you conclude about the 15th of October?—Before the 15th of October.

176. And the duty does not become payable until the 15th of May of the following year?—Yes.

177. Does not that, in point of fact, allow seven clear months for paying the first half of the duty, and 13 for the last half?—Yes; if you reckon from the time when the hops are cured and bagged.

178. Did I rightly understand you to say, that about 7-8ths of the hops that are grown in England, are brought very speedily to market?—Yes; probably that amount is brought to market by the beginning of the year, by January or February.

179. So that the growers have a very large sum of Excise duty in their hands due for the hops they have sold long before they pay any duty?—They have in ordinary years.

180. You gave us the average of the amount of hops grown in the last three years; are you aware that in those three years there was the largest growth that was ever grown by nearly 10 per cent.?—Yes.

181. Could you tell us what was the average duty paid for the last 10 years?—The average of the last 10 years was 352,798 *l.*

182. You stated the quantity of hops used to each bushel of malt in the ordinary beer brewed by the London brewers to be from about a pound and a half to two pounds a barrel?—Yes.

183. So that in 14 barrels there would be 6½ pounds?—From six to eight pounds in four barrels of that description of beer.

184. Do you make that statement from any knowledge of your own upon the subject?—No; I explained, that I had no means of obtaining any certain knowledge upon it. In the beer that comes under our observation, we believe that they do use about that amount of hops; I speak of the beer for which they claim drawback.

185. Is not that beer which is exported?—Yes. As to the beer that is sold in London, I have no means of exactly knowing the quantity of hops that is used.

186. Are you speaking from the knowledge which you have on the beer that is exported, when you speak of its containing only two bushels of malt to the barrel?—Not absolutely. Our Licence Act is based upon this assumption. In establishing the duty for the Licence we took all possible care to obtain the best information, and we found that two bushels were the average for beer and London porter.

187. Are you aware that the common computation of the London porter brewers is 13 barrels and a half of beer to a quarter of malt of the lowest descriptions for London beer?—Yes; that is a little more than I have stated.

188. You have told us that there was no drawback allowed for the hops used in the beer which is exported?—None.

189. You spoke of the duty falling on the consumers; did you mean to tell the Committee that if the duty were removed, the consumer would have access to a cheaper beer?—Certainly.

190. If they had cheaper beer, is it not probable that they would consume more of it?—That depends upon the rate of cheapness a good deal.

191. Do not you think that the grower is affected by the quantity of hops for which he may have a demand?—He may be affected by the demand being less.

192. Is not the article of hops one of which, on an average, more is grown than

than is required, in order to guard against the great vicissitudes in the production of the plant?—I dare say there is a greater amount of acreage under cultivation than would be required for the average consumption.

193. Have you ever known, or have you any reason to believe, that hops were exported which, nevertheless, you knew to be sound hops, and upon which you allowed the duty, for the sake of being thrown into the sea?—I have heard that to be the case.

194. Have you any doubt of it?—Beyond the statement that such a thing has occurred, I have no knowledge whatever.

195. (To Mr. *Pressly*.) You have stated that large quantities of hops produced in the year 1848 were exported in the year 1856; is it credible that those hops were exported for consumption, considering the growth of new hops all over England?—I should suppose that if a merchant got them very cheap, he might be inclined to try them in a foreign market; they were exported to Port Phillip.

196. Do not the Customs require merchants who are exporting hops to state *bonâ fide* that they are intended for trade?—They do.

197. Would it not, therefore, be requisite for those who exported these hops to name the part as a part to which they were going, although they might throw them into the sea as soon as they got out to sea?—It might be so.

198. Mr. *Wykeham Martin*.] Are you aware that there is a great feeling at the present moment in favour of substituting acreage duty for the present duty?—Yes.

199. Have you given that subject your attention?—No, I have not. I know that it was suggested to the Excise some time ago.

200. (To Mr. *Dobson*.) Would not there be a great saving in the cost of collection, if the duty were collected in that way?—It would be a saving of 3,000 *l*. a year. We could manage an acreage duty without any assistant officers.

201. You gave 3,846 *l*. as the cost of collection, is not that 17 *s*. 8 *d*. per cent. upon the sum collected?—Yes.

202. If an acreage duty were imposed of 3 *l*. a year, which would be, as you supposed, about equal to half of the duty now collected, would not that 17 *s*. 8 *d*. per cent. become about 1 *l*. 15 *s*. 4 *d*. per cent.?—Yes, if the same number of officers were employed.

203. Is not that a very low per centage, compared with the costs of collection of other duties?—It is, with reference to the Excise duties.

204. Do you know what the per centage of the cost of collection of the malt duty is?—I do not know exactly what it is, because the officers engaged in collecting it are employed at other times in doing something else.—(Mr. *Pressly*.) The cost of the collection of the whole of the Excise duties is 3 per cent.

205. If the hop duty for the year were reduced to a half of what it is at present, would not it still be cheaply collected at the cost you have mentioned?—It would be much more so than the other Excise duties.

206. Mr. *Ball* (To Mr. *Dobson*).] Would you allow me to call your attention to an answer you gave just now—you stated that the duty falls on the consumer and not on the grower of hops; do you still maintain that view of the duty?—I am unable to look at it in any other light.

207. Does not price very much affect consumption?—Yes.

208. If there is a very great consumption of beer, would not that very much increase the consumption of hops?—Yes.

209. If there is a very great increased consumption of hops would not that assist the price of hops?—No doubt it would.

210. Take this illustration: The Chancellor of the Exchequer the other day took off 50 per cent. from the malt duty; would it not materially affect the grower, whether the duty on malt was 20*s*. or 32*s*.?—It would, as to the demand.

211. As to the price, would not he get a great advantage?—He would get a higher price probably.

212. Mr. *Knight*.] How would the consumer be benefited if the duty was reduced to the amount of 4 *d*. for 36 gallons?—He would only be benefited to that extent.

213. Would he be benefited unless he bought it by the barrel?—The price is always

always accommodated in the quality. If it is not taken off the price the quality is made so much the better.

214. Mr. *Ball.*] Do you still think that your answer is correct?—I cannot help thinking so; so far as beer is consumed by the consumer, he pays the tax.

215. You stated in another answer that about two bushels of malt were used in a barrel of porter, are you able to tell whether more than two bushels of malt is introduced into every barrel of pale ale?—Yes, I have seen many barrels of pale ale examined; the quantity of malt was three bushels to a barrel.

216. Do you think that there is no more malt used in pale ale than there is in porter?—There are different descriptions of pale ale made.

217. Taking the average produce of porter, and the average produce of pale ale, is it your opinion that there is more malt used in a barrel of pale ale than there is in a barrel of porter?—I should be inclined to speak only as regards ale exported; more malt is used in it than in ordinary porter.

218. Sir *Edward Dering.*] With regard to an acreage duty upon hops, you have been asked by a member of the Committee whether 3 *l.* an acre would be equivalent to the present duty, have you ever turned your attention to that subject?—The acreage of last year is 54,500 acres, and we should require duty of 6*l.* 10*s.* an acre as an equivalent to the present duty.

219. Will it require 6*l.* 10*s.* an acre to bring up the duty to the acreage of the last ten years?—I speak of the average of the last ten years.

220. You have given us the average amount of the duty for the last ten years as 352,798*l.*; have you any means of informing the Committee what amount of acreage duty on the average of the last ten years would be required to produce the same amount?—£. 6 10*s.* per acre, assuming the acreage of last year. I give the calculation in round numbers.

221. *Chairman.*] (To Mr. *Pressly.*) Is not the amount of duty per acre in the different collections very various?—Yes, it varies in the year 1856 from 11*l.* 7*s.* 1*d.* to 10*d.* in different places, the average being 8*l.* 19*s.* 3*d.* for the kingdom.

222. Sir *Edward Dering.*] You have stated that an amount of duty is left in the grower's hands for a considerable period; have you met with many defaulters?—There has been very little default.

223. Have you practically lost much by the fact of an amount of duty remaining in the planter's hands for a considerable time?—Very little.

224. Sir *John Shelley.*] What number of prosecutions have you had in a year during the last 10 years?—During the last 10 years, the only one of any consequence was the year 1850; there were 118 prosecutions in that year; I have a Return showing the number of cases of proceedings against hop planters for the non-payment of duty, and other offences during the last 10 years; that return does not include the cases in which proceedings have been taken for the double duty.

225. How far does that return go?—From 1847 to 1856.

226. Will you complete that paper, and furnish it to the Committee?—I will.

227. Mr. *Knight.*] Would it be possible to levy a duty of 6*l.* 10*s.* per acre in years of failing crops?—I suspect it could not be levied anywhere but in Kent and Sussex.

228. Will it not press much more heavily than the present duty?—It would be unequal in its operation.

229. *The Chancellor of the Exchequer.*] Do you think that it would amount to a prohibitory duty upon certain soils?—The general understanding is, that an acreage duty would throw all the poorer soils out of cultivation.

230. (To Mr. *Pressly*). Where are the poorer soils with respect to hops situated?—The collection in Cornwall has been only 11*s.* 2*d.* an acre; they grow very little there. In the Herefordshire collection, which amounts to 4,602 acres, the average of the duty per acre is only 1*l.* 3*s.* 10*d.*

231. Mr. *Beresford Hope.*] Has your attention been called to the fact, that the chief cry for an acreage duty has been from the growers of the poor soils?—Yes, it is so.

232. Does not that seem rather to militate against the doctrine that you have laid down?—(Mr. *Dobson.*) I speak of soil fitted for the production of hops;

I cannot say anything as to its fitness for other purposes. The Weald of Kent does produce an immense quantity of hops.

233. Mr. *Bass.*] Are you aware that the call for this inquiry comes chiefly from the Weald of Kent and Sussex, which you have described as the poor land?—Yes.

234. Do not they pay a larger duty per acre, in consequence of the hops being of a more prolific kind, than the growers in Mid and East Kent?—Yes.

235. If they pay a large duty now, and if an acreage duty of 3 *l.* an acre would be far below what you have stated to be the average receipt from the hop duty for the last ten years, does not it follow that the growers in those poor soils would be greatly relieved by the acreage duty?—In the Weald of Kent and in Sussex they would be greatly relieved by an acreage duty.

236. Mr. *Knight.*] Is not the produce of the Weald of Kent and Sussex in a good year more than it is in the other parts of Kent and Worcestershire?—I think it is, certainly.

237. Mr. *Ball.*] Would that difficulty arise if an acreage of duty was paid in proportion to the rental of the land; might not the amount of duty per acre be governed by the land, the value of the land being measured by the recognised amount of rental?—There might be some such mode of adjustment, but it would be exceedingly difficult to carry it out.

238. In fact, unless there be some equivalent benefit arising from paying a duty like that, there would be nothing gained?—Nothing; but the growers who were now getting 15 cwt. an acre would have an advantage over those who were getting three or four cwt. if a fixed acreage rate were established.

239. Would that be the case, if the rate were paid upon the value of the land?—No, if that could be adjusted by taking the value of land according to its hop producing power; but there would be nothing gained by that.

240. Do not you think that it would be an advantage to the hop grower, if the duty were paid per acre instead of the present mode?—I cannot see that there would be any advantage to them upon the system of adjustment that you have suggested. Any other method would appear to be to my view unfair from its unequal operation.

241. Mr. *Bass.*] Do you think that it would be possible to levy an *ad valorem* duty upon hops?—We could not do it.

242. Mr. *Wykeham Martin.*] I believe you have already stated that the bonding system is impracticable?—It would be expensive to both parties.

243. Mr. *Knight.*] Is it right to consider that the poorest hop land which grows the largest amount of hops?—No; I should consider that the best hop land.

244. Have not you been speaking, on the supposition that the Weald of Kent and Sussex is the best land?—It is the best hop-growing land I know of, in reference to the quantity of hops produced; the quality is inferior I believe.

245. Would not the value of the produce per acre be greater there than anywhere else?—The number of hundred weights per acre is much greater than anywhere else.

246. Mr. *Bass.*] Are you aware what is the produce per acre of hops, in what are called short crops?—No; I am not sufficiently acquainted with the cultivation to be able to say.

247. Are you aware that the growers prefer a short crop, if it is pretty evenly distributed, and that if they get a good year, they say that it is too large a crop?—I should expect that.

248. Do not they like short produce?—They like short produce, and high prices, seeing that the labour and expense are less in those cases.

249. Mr. *Ball.*] Do not they prefer a short crop, because it produces a high price with little labour?—Yes.

250. Mr. *Bass.*] How did you come to the conclusion that the expense of the hop duty amounts to only 4 *d.* per barrel upon beer?—Upon the assumption that two pounds were used to a barrel.

251. I am anxious to learn from you how far the price of hops may influence, if not the price, at least the constant manufacture of beer. What is the highest price that you ever knew paid for hops?—I am aware that they have sold as high as 27 *l.* or 28 *l.*

252. Have you any doubt that, upon the average of a large quantity, upwards

upwards of 12 *l.* an cwt. must have been paid in 1854?—I should not doubt it at all.

253. Do not you think that your calculation of 8 lbs. of hops to a quarter of malt is below the average?—It is not below the average for the description of beer I speak of.

254. Is it not below the average for all kinds of beer?—It is below the average for all kinds of beer.

255. There being 8 lbs. of hops to a quarter of malt, and the price of hops being 4 *s.* a pound, do not we come to the cost of 32 *s.* for the hops used for brewing a quarter of malt?—Yes.

256. Are you aware that any objection has been made to the hop duty by the growers of barley?—I am not aware.

257. Upon such an amount as 32 *s.* a quarter, would not that be considered a burden?—Yes.

258. Mr. *Ball.*] Is the amount of the duty increased in proportion to the price of the hops?—No.

259. Does the duty upon hops increase in proportion to the price of hops in the market?—Certainly not.

260. Consequently the duty can have no effect upon the price of beer beyond the amount of duty that is paid?—No.

261. Mr. *Bass.*] Do not you think that if there were no duty, more hops would come into the market?—I think it is likely that there might be more hops used by the brewers, and consequently a greater demand.

262. Would not there in that case be more grown?—Yes; that follows necessarily.

263. *The Chancellor of the Exchequer.*] Would not the most effectual means of increasing the supply of hops be to reduce the Customs duties to the level of the Excise duties?—That would certainly have a tendency to increase the supply very much.

264. In that case, would not the whole produce of the continent be at the command of the English consumers?—The foreign growers would make preparation for this market in that case, which just now they do not do.

265. If the Customs duties and the Excise duties were equalised, would not the supply from foreign countries be practically unlimited?—I should think so.

266. Is not that the case at present with regard to malt; is not the supply of barley for malting purposes practically unlimited?—Perhaps not for malting purposes; the foreign grown barley is not so suitable for the purposes of malting as the home grown.

267. Cannot the foreign barley be substituted for our English barley?—Yes, and it is so to a large extent.

268. Therefore, though the reduction of the duty on malt might increase the demand for barley, would not that increased demand be supplied by foreign importation?—To a certain extent it would.

269. Therefore, supposing a portion of the duty on malt were further reduced, would it not benefit the consumer, and not the grower?—It would benefit the consumer.

270. *Chairman.*] You have said that the demand for hops is limited by the consumption of beer?—Yes.

271. Is there not a constant chance of the production of the year outrunning the demand?—Yes; there is a chance of its outrunning on the one hand, and falling short on the other.

272. Is not that in consequence of the great variation in the amount of the crops?—Yes.

273. Supposing the Customs duty were taken off, would the foreign growers think it worth while to plant and grow for so precarious a market?—I think they would. There is a surplus stock now, and they would then have more encouragement to increase it.

274. Do you think that, seeing they could never tell but what the English market would be flooded by English hops for the year, they would think it worth while to plant an extensive crop upon that chance?—The foreign grower does not find it a very expensive crop. His crop is steady, and the demand is such that they have sent us, on the average of the last 10 years, 18,000 cwts.; and I should think, if the market were thrown open, and no greater

C. Pressly, Esq. and *T. Dobson*, Esq.

11 June 1857.

duty levied upon foreign hops than upon the home-grown, they would have a greater inducement to compete for the supply.

275. You said just now that the price of hops in the English market was regulated by the supply of that market?—Yes.

276. There being a limited demand, and the price being regulated by the supply and demand, and not by the cost of production, the grower cannot command his own prices; is not that so?—Yes, it is so. I take it, in all cases, that the price of all articles is regulated to a considerable extent by the comparative amount of supply and demand.

277. Is it not regulated in general also by the cost of production?—Yes, to some extent.

278. The producer will not sell below the cost of production?—Not if he can help it.

279. Is not the supply at the English market regulated solely by the supply and demand?—Yes.

280. Therefore, may it not happen constantly that, in an abundant year, the growers sell below the cost of production?—No. I cannot see that, even in an abundant year, he would sell below the cost of production.

281. Sir *John Shelley.*] Are you aware what the calculation of the cost of production is?—I have heard it stated from 22 *l.* to 25 *l.* an acre.

282. Have you ever heard it put above 25 *l.* an acre?—Yes. I dare say it is more than that, including all the expenses of the crop, together with the picking. But these are things upon which I cannot speak from my own knowledge.

283. *Chairman.*] Supposing that the grower produces his hops at the cost of 3 *l.* per cwt., and that the duty is about 1 *l.*; ought he not to sell at 4 *l.*, so as to recover his expenses?—Yes.

284. Supposing that, in consequence of the over-supply of the market, and of the demand made upon him for a certain sum, he is forced to sell at 3 *l.* a cwt., he has to pay the duty out of his own pocket?—In the case supposed, he has.

285. Is not that a perfectly possible case?—It is possible, but it does not frequently occur.

286. Is there not constantly an over-abundance of hops in the market, evidenced by the constant demand made annually for the postponement or remission of the duty?—I believe there has been a good deal of agitation for the remission of the duty; there have not been many demands for the deferring of the payments of late years.

287. (To Mr. *Pressly.*) Will you tell us how often the duty has been remitted since 1819?—A moiety of the duty has been remitted in one case only, but the time of payment has been extended, as I have already stated, on 14 different occasions.

288. *Chairman.*] (To Mr. *Dobson.*) Do you receive similar requests for the postponement of duty from the maltsters and other parties subject to the Excise?—No, we do not.

289. Does not that prove that the hop duty presses more heavily upon the hop growers than the duties on the other people who pay the Excise duties?—I am afraid it shows the evil of the Government having made a bad precedent. If they had given the maltsters a postponement, many of them would have been pressing for it.

290. Mr. *Bass.*] Is there any reason why you should not give a postponement of duty to the maltsters, quite as much as to the hop growers?—No.

291. Supposing I had 30,000 *l.* to pay for a duty on malt, and I found that, in consequence of the state of the money market, it would be extremely difficult to get the money at the proper time, would you be disposed, if I came and asked for a postponement of credit, to grant my request?—I think you would be met by an emphatic "No."

292. Why do you do it for the hop grower?—It is simply because an unfortunate precedent was formed.

293. *Chairman.*] Is there not this difference between the two cases; that in the case of maltsters you can limit the manufacture of the article, and can therefore limit the supply; but that the hop growers cannot do that?—A man

engaged

engaged in a trade cannot well do that, he is ruined if he does not carry on his business to a certain extent.

294. Mr. *Wykeham Martin.*] Does not the maltster buy no more barley to malt than he wants, whereas the hop grower has a certain amount of hops over which he has no control?—Yes.

295. Mr. *Ball.*]—The question was asked, whether the malt duty was not as heavy upon the farmer paying the duty on malt as the hop duty is upon the hop grower; and in answer to that, it was suggested that the maltster can limit his consumption, and need not buy so much barley. If that relieves the maltster, does it not throw the weight upon the farmer?—Yes; the farmer must keep his barley.

296. You were asked whether the uncertainty connected with the growth of hops would prevent foreigners from coming to compete in the market. Is the uncertainty attendant upon growing foreign hops greater than the uncertainty attendant upon growing English hops?—No. The foreign crops are surer than the English.

297. Does not that argument apply to the difficulty which surrounds the hop grower in England more than to the difficulty which is felt by the hop grower in foreign countries?—Yes.

298. You said that you thought a bad precedent was laid down when the Treasury consented to the application made by the hop growers, with regard to the postponement of the payment of the duty on various occasions. Do you think that, supposing the duty were levied sooner, and less time were given to the hop growers, a hop grower to pay the duty, he would be rather benefited than otherwise?—I believe that it would be a hard matter to convince the hop grower that it was so.

299. Practically, do you think it would be better or not for the hop grower, that as soon as his crop was harvested, he should have to pay the duty upon it, instead of having a certain number of months to find the money?—No doubt, it would be better. I think it would be better to pay the duty promptly.

300. Do you think that he would be in a better position to pay the duty at once than he probably would be later?—He would, because he has the money in his hand.

301. *Chairman.*] Immediately after imposing the duty, you give six months' credit?—Yes.

302. Is not that a longer credit than you give to any other people who pay Excise duties?—Yes; but, as I have stated, maltsters who give bonds have 18 weeks' credit.

303. Is not the delay there rather the exception than the rule?—A great proportion of the maltsters do give bonds and get credit.

304. Did not the original Act allow six months' credit?—Yes.

305. Do you not suppose that account of the precarious and expensive nature of the growth of hops, and the great oscillation between the supply and demand, was considered to be a duty, in respect of which a longer amount of credit should be allowed than to other duties?—In proportion as you prolong the period of the payment, there is a tendency to increase the difficulty of the payers: 30 or 40 years ago, Excise duties were not claimed so promptly as they are now.

306. Is not the system with regard to these duties, to take payment for them at the time that the crop is produced with regard to other things, although with regard to hops a long credit is allowed?—To that extent.

307. Is it your opinion, that it would be better for the hop grower himself if he had soon to pay the duty?—Yes.

308. *Chairman.*] If the duty be payable immediately, would not it tend even more than is the case now to throw the business into the hands of men of large capital?—Yes; if it were called for immediately it would probably be too severe, but a short period might be given.

309. In the years of large crops, and consequently of low prices and heavy duties, would not it require a man of large capital to be able to meet the heavy duty?—All men would be alike capable of meeting the duty, if the duty were paid within a short period after the sale of the hops.

310. Mr. *Ball.*] Are the hop growers generally wealthy men, or otherwise?—I really cannot venture to say.

311. Supposing that they are not all wealthy men, is not it a great accommodation

C. Pressly, Esq. and *T. Dobson*, Esq.

11 June 1857.

modation to them, after they have been at the expense of growing the crop, which is particularly expensive, to have a period in which they abate the payment of the duty. If the duty were paid at once, would it not be a great inconvenience to them to have to find the money at once, after being at a great outlay for producing the crop?—If you ask for the duty before the crop is sold, it would be so.

312. Must not the sale be progressive?—Practically the sale is nearly immediate. A great portion of the hops are sold speedily, and the money passes into the hands of the growers.

313. Sir *Edward Dering.*] If it was well known that the duty was payable at short notice, would not that necessarily reduce the price of the hops, by forcing all the small growers to take their hops to market at once?—I think that in that case he would pledge it in the hands of the factors, who would make advances upon it.

314. Sir *John Shelley.*] You have stated that you believe that the cost of production of English hops was an average of 25 *l.* a year?—Yes; but that is exclusive of picking, curing, and packing.

315. Have you calculated what would be the expense of growing an acre of foreign hops?—No; I have no possible means of doing it.

316. The same effects of the cost of production must be pretty nearly the same in England as abroad; as regards building, must not they build oast houses, and things of that sort?—Yes, but the labour is very much cheaper.

317. Mr. *Wykeham Martin.*] You stated just now the weight of the canvas of a package of hops; are you not aware that the weight of the canvas used for bagging is very much heavier?—I think that I said, that in the case of bags there was little or nothing gained by the 10 per cent.; but in the case of pockets, there was a positive gain of 8 per cent.

318. Mr. *Bass.*] Can you tell us the proportion of hops that is put in bags, as compared with that that is put in packages?—I cannot say; I think that, as a general rule, the finer description of hops are put into pockets, and the coarser into bags.

319. Mr. *J. Locke.*] You stated the number of English hops that we exported in 1846?—I did.

320. What was the quantity in the year previous to that?—I have no return, but it can be furnished.

321. Does not it vary very much indeed?—The quantity in 1855 was 852,000 lbs., and it was 1,500,000 lbs. in 1856.

322. Can you say what it was in the year before that?—The quantity of English hops exported in the year was 585,000; in 1855, it was 852,000 in round numbers; and last year it was 1,500,000.

323. Has the export of British hops gone on increasing from year to year?—I cannot say so. In 1851, 904,000 lbs. of hops were exported; in 1852, 955,000. The exports seem to have taken a start in 1851; but since 1851, with the exception of this last year, there has been no increase.

324. *Chairman.*] Is not the principal amount exported to the Australian colonies?—There is a large quantity exported to Australia.

325. Mr. *Knight.*] Has not the acreage of the hops in the Weald of Kent increased very much of late years?—The total quantity this year under cultivation in the kingdom is 54,000 acres. Twenty years ago it was 55,000. The quantity under cultivation varies very much, but I cannot say whether the acreage in the Weald of Kent has increased.

Mr. *Lawrence Reeve*, called in; and Examined.

Mr. *L. Reeve.*

326. *Chairman.*] YOU are a Hop Grower?—Yes.

327. Have you been a hop grower for many years?—Nearly 30.

328. In what part of the country do you live?—I live at Peas Marsh.

329. That is near Rye?—Yes.

330. Is that where your hop land is?—It is in the parish of Peas Marsh.

331. How many miles is that from Rye?—A great portion of my plantation is very close; within a mile or two.

332. Is there not a great deal of hop land thereabouts?—Yes, there is in our neighbourhood.

333. Are

333. Are you well acquainted with the plantations round?—Yes.

334. Do not you act also as a land agent?—Yes.

335. What is the general rent of hop land in that neighbourhood?—The farms are let together. I could not give you the distinct rent for hop land, because the whole farms are not so much devoted to hops in Sussex as they are in Mid Kent. I should say that the general run of rent of farms, as a whole, in the Rye Union, would be about 30 *s.* an acre.

336. What proportion of the acreage of the Rye Union is under hop cultivation?—I think the number of acres under hop cultivation in the Rye Union would be about 1,500.

337. Is not hop gardening the most expensive part of farming?—Much.

338. In what proportion?—It is about six times as much as arable land. It is more than six times over the whole occupation.

339. Is not it the most uncertain crop of any?—Yes, it is very uncertain.

340. You cannot tell whether there will be a small crop, or whether there will be a large crop?—No, not one year from another. At the conclusion of one year we do not know what the next year will be at all.

341. What has the produce per acre amounted to in full years?—The largest, I think, was in 1855, and was about 12 cwt. an acre through the county.

342. What was the average amount per acre in that year in your district?—I should think in 1855, it is probable that we grew towards a ton.

343. Mr. *Brand.*] That is confining your observations to the Rye Uuion?—Yes.

344. *Chairman.*] What sort of land is the land which you cultivate?—It is low level land. In the immediate neighbourhood of Rye, we are planting the level land.

345. Is that land that requires drainage?—Yes; and at a considerable expense.

346. Is it essential to the cultivation of the hops in such a soil that it should be thoroughly drained?—Most essential. It is of no use to try to grow them without.

347. What subsoil is there in your land?—In the bottoms it is all alluvial deposit.

348. Is not it wet ground?—Yes. In a dry time, if you get down about two or three feet, you find you have the moisture rising directly.

349. Would you require, on such land as that, to go to a greater expense in draining than you would in any other soil?—You would require more than you would on the generality of soils in our country.

350. Would you say that it is an expensive land to cultivate for hops?—It is more expensive than some. The draining is more expensive.

351. What expense per acre should you say was incurred for draining?—It is not an annual charge; when you have done it, it is completed. I should think that it is about 7 *l.* or 8 *l.*

352. Sir *John Shelley.*] Do you use pipe drains?—Yes.

353. Are they very deep?—We get as deep as we can; as deep as we can get an outlet.

354. *Chairman.*] Is not the crop very variable?—Yes.

355. Does the price vary very much from year to year?—Very much.

356. In what year is the price generally the lowest?—In the full crop years.

357. In the full crop years, would not the obvious course be not to sell a large portion of the hops?—Yes, if the planter was enabled to do so.

358. Being an expensive crop, and having cost a great deal of money to produce, must not the farmer be a man of large capital to be able to hold over?—Yes; he would require to be a man of very large capital indeed.

359. You are now speaking of the natural course of growing hops, putting the duty altogether out of the question?—Yes. You would want a man of capital to hold the hops over, and to continue to cultivate the whole of his farm.

360. When is the duty heaviest?—The duty of course takes a very great per-centage in the low price year out of the Sussex hops. When the Sussex hops are 50 *s.* per cwt., and we have a duty of 18 *s.* net to pay, of course it takes a great per-centage out of the value.

Mr. L. Reeve.

11 June 1857.

361. In what year is the duty heaviest, in an abundant year, or in a scarce year?—In a heavy crop year.

362. Does not the hop grower require, over and above these expenses that you have spoken of to enable him to hold over, a large sum of money to meet the claims of Government?—Nearly double the amount required to cultivate and stock his farm.

363. You were speaking before without considering the duty?—Yes, I think he will require double the amount of capital to hold his hops, with the cost of labour, without paying the duty, and paying all other expenses.

364. If there was no duty, would he not still require a great deal of capital to enable him to hold over his hops?—Yes; the expenses which he has to pay at the conclusion of the year is very considerable, without duty.

365. But this along with the duty comes as an additional charge upon him?—Yes, it presses very heavily, and that in more ways than the amount of the duty; we consider it is well known that the great bulk of the hops must go to market in the course of a year; in the low-priced years.

366. Could a man bear the expenses of cultivation and pay the duty in the full crop years, and hold his hops back, unless he was a very large capitalist indeed?—No, he could not.

367. What is the effect of that upon small farmers?—It is very hurtful.

368. Does not it reduce hop growing to a business fit only for men of large capital?—With the large amount of duty there is to pay, it does.

369. Can you speak to the fact, whether it is often the case that the hop growers are compelled to sell at a loss to raise money against the duty day?—It is generally so considered; it is generally considered that prior to the time when the duty has to be paid, if there is a full crop, it does affect the price.

370. Does the price of hops go down in consequence of those circumstances?—Yes; it creates a great pressure upon the market, that is the general opinion, and I think so myself.

371. Is not it an occupation that requires a great deal of manual labour?—A great deal; it amounts to about 10 *l.* or 12 *l.* an acre I should say in our district; I could not speak precisely; of course there is a great variation; different people cultivate in a different manner.

372. Sir *Edward Dering.*] Do you include picking in that amount?—Yes, I do. I speak of manual labour alone now.

373. *Chairman.*] In an abundant year, when the farmers are compelled to sell at a loss to meet the duty, does not that cause great distress among them?—Yes.

374. Is not he unable to employ all his labourers?—He generally shortens his labourers as much as he possibly can.

375. Is not the effect of an abundant year of hops very much to increase the poor rates?—I understand from returns that have been made in the hop districts that it is so.

376. Is not it the case in the Rye Union?—I think, some years ago, about the year 1848 or 1849, when there was great distress among the hop planters, that was one great point urged upon Government; the poor rates were increased, and there was a great want of employment among the agricultural labourers.

377. Is there not a great deal of manual labour depending for employment upon the hop fields?—Yes, no question of it.

378. In a season when the hop growers are depressed, do they shorten their labour?—Yes, as much as they can.

379. You said that the cultivation round your district is on the low flat land?—Yes, it is so in our immediate district; a great deal of the union (more than half) is on what we may call the uplands, taking the union throughout.

380. What sort of hops do you grow?—The grape hop, principally; some colegates, some Jones's.

381. Do you grow none of the goldings?—None; they have been tried several times, but they will not do in our district. My father has tried them, and I have tried them, and we never could succeed.

382. Can you state from your knowledge as to whether the planters are in the habit of mortgaging or securing their crops in advance?—I think so.

383. Do

383. Do you know it?—I believe it is the case sometimes that there are advances made, previous to picking.

384. Are not they compelled to do so, to find the money to meet the duty? —Yes, very often, if they have a full-crop year.

385. Is not the distress always greatest in full-crop years?—It is much greater then.

386. Sir *Edward Dering.*] When you have a full crop, does not it take a great deal more labour?—When we have a large crop, we must pick it; but the next year we shorten the labour as much as possible.

387. Sir *John Shelley.*] Is there any manual labour employed in the cultivation of hops that you reduce in such cases?—Yes, we reduce it considerably; we often plough the hops instead of digging them in those years; a great portion of the plantation will be ploughed in those years. They plough all that they can plough, that is, the plain ground between the rows of plants.

388. Is there any other item of manual labour that you can reduce?—Yes, there will be a great difference in the application of manure to the plants. There will not be any manure purchased when the man is needy.

389. The manual labour, in that case, would be that employed in spreading the guano, and so forth?—Yes.

390. Will you state, beyond the difference between ploughing and trenching the hops, what other manual labour there is that you would not do in such a year?—They would not till the ground so much; through the summer there is a great deal of tillage goes on.

391. Do you think that a man who has lost money on his hops one year would not keep the crops clean next year?—From necessity he would not; but it is only necessity that compels him.

392. Is not it probable, if he saw the necessity of a reduction, that he would reduce his labour on the farm?—Perhaps he has not the same anticipations with respect to the crops on other parts of his farm as with respect to the hops; and having been a full crop in one year with the weight overhanging him from the year before, he considers that they will not pay for going into any cost for the next year.

393. Practically, do not you think upon the average, that the hop growers, who are obliged to exercise economy in the cultivation of their farms, will be more likely to rob the rest of the farm to keep the cultivation of hops up, rather than reduce the manual labour upon the hops, in consequence of having had a large crop the year before which did not pay?—I do not think they would. I do not think they could, inasmuch as the labour is so small comparatively upon the arable land as compared with the hops. There is but the ploughing and sowing the crops, and almost the only labour he has is a little weeding occasionally.

394. Is not there ploughing for the turnips, and so on?—We do not cultivate turnips in our district to any extent.

395. In what you have stated, do you refer to your own particular district? —Yes.

396. *Chairman.*] How long does a hop plantation last?—It will vary considerably.

397. How long will it last upon this wet soil, which requires so much drainage? —I suppose 14 or 15 years.

398. Mr. *Knight.*] You said it cost 7*l.* and 8*l.* an acre to drain. Supposing it were not planted with hops, what would be the difference in the value of land before and after draining?—The hops will of course be drained; they would be worth more.

399. Would not it pay to drain a large field at the cost of more that 8*l.* an acre, even if it were not planted with hops; would not the rent be increased considerably?—It would be too great an outlay for a short tenancy to do it generally.

400. Supposing it were done by the landlord?—For grass land, we do not consider it so necessary, or so beneficial.

401. For arable land?—For arable land we should drain it; I have drained arable land the same as I have for hops.

402. Mr. *Bass.*] At the same expense?—At the same expense.

403. Mr. *Knight.*] What would be the difference of rental between 100 acres undrained, and 100 acres drained?—I think considerable.

Mr. *L. Reeve.*

11 June 1857.

404. How much would the increase be?—I do not think I can explain myself better, than by saying that the best lands of Romney Marsh, of the same character, which do not require draining at all, let as arable land at 4 *l.* per acre; whereas the other description of land would not fetch more than 50 *s.*

405. Does not the high price of hops render it worth while to go to this extraordinary expense in growing hops in your district?—It appertains to the cultivation of hops in the same way as it would appertain to the cultivation of corn.

406. *Chairman.*] Does not it make the cost of raising the crop, whether they are hops or anything else upon the land, more expensive than it otherwise would be?—Yes.

407. Mr. *Knight.*] Can you give the Committee the details of the amount of hops grown in your country; how many acres do you generally grow?—I have not a great many; from 70 to 80 I think now.

408. Could you furnish us with an account of the number of acres that you have had in cultivation each year?—No, I could not. I could not speak to it off-hand.

409. Could you make a list of it, and furnish it to the Committee?—I think, perhaps, I could answer what you desire by saying that, in my occupation, the number of acres of hops is much less than it was 10 or 15 years ago.

410. Is that from having let the land go out from hop growing, or have you given up the cultivation of hops?—Yes; and I think ours is one of the most kindly districts for growing hops in Sussex.

411. Did not some land go out of hop cultivation that you formerly had in hop cultivation?—It must be so if there is a reduction.

412. Is there a reduction or an increase generally in the whole of the union within the last 30 years?—I could not speak to that correctly. I should say there was no increase; I should say it was about the same. I could tell you how it varied over a period of years. This is a Return called for by Mr. Hodges in the year 1852, and printed by order of The House of Commons. In 1837 there were in Sussex 12,016 acres under hop cultivation; in 1838, 11,515; in 1839, 10,808; in 1840, 8,990; in 1841, 10,143; in 1842, 8,947; in 1843, 9,072; in 1844, 9,928; in 1845, 11,016; in 1846, 12,024; in 1847, 11,877; in 1848, 11,000; in 1849, 10,000; and in 1850, 9,000.

413. Mr. *Bass.*] What was the amount of acreage last year?—I think it was about 11,000 in 1856.

414. Mr. *Knight.*] Has the hop-growing trade been profitable in Sussex?—I believe that no man could bear cultivating hops in Sussex as a whole if he had no other business in connexion with it.

415. You have continued for 30 years, and you have now between 70 and 80 acres?—I have; and I have a great deal of other business in connexion with it; I farm some 1,500 acres.

416. *Chairman.*] Is not it a business only suited for men of capital?—Yes, and a kindly district.

417. Have not many men who had not capital lost by hop growing?—Very many; I have no doubt of it.

418. Many of those men doubtless still go on attempting to cultivate hops?—Yes; they have everything about them to carry on the trade; they cannot tell what the result may be, but they hope to regain what they have lost.

419. So that it is a gambling speculation?—It becomes so under such circumstances.

420. Mr. *W. Martin.*] You estimated the cost of production at 11 *l.* or 12 *l.* per acre. Was that the whole sum expended in cultivating an acre of hops?—No, only the manual labour.

421. At what do you put the whole cost of cultivating an acre of hops?—About 24 *l.* or 25 *l.* That is the expense of cultivation up to the picking the crop. In speaking of the expense of the cultivation of hops, it must be divided into two parts.

422. Why have you continued to grow hops for 30 years if you consider it an unprofitable occupation?—I do not speak of my own individual business as being unprofitable. I have spoken of the Weald of Kent and Sussex. I consider myself in perhaps the most favoured part of Sussex.

423. Do not the Sussex hop planters continue to grow 9,000, 10,000, or 12,000

12,000 acres per annum, though they say it has not paid them?—They have reduced considerably; nearly 2,000 acres is the calculation I have made.

424. Is not your hop land of superior quality?—Yes.

425. Of the sort that grows all the common sorts?—Yes, the grape hop.

426. Have not you almost only that?—I have very little else.

427. Do not you grow the hop of the largest production?—It is the most suitable to our country; the colegates will grow more readily upon some soils.

428. What do you consider your average crop per acre over a number of years?—It is very different at different periods.

429. Can you tell me what you have averaged per annum?—No.

430. Could you furnish that to the Committee?—Yes, I could, having time.

431. Will you be so good as to do so?—Yes.

432. Could you tell the Committee the average price at which they have sold each year?—That would take considerable time.

433. *Chairman.*] Are not the hops which you spoke of, the grape and the colegate, the lowest priced hops?—Yes, they are the lowest priced hop; the goldings are the highest priced hops.

434. Mr. *Bass.*] Is not the colegate sometimes mistaken for the goldings in Mid Kent?—I cannot speak of Mid Kent. It is a thing I am not acquainted with. I do not think they would buy our colegates for goldings.

435. You said that you had known 20 cwt. grown on an acre of land?—That was in 1855.

436. Will you tell me what is the largest crop you have ever known grow on any single piece of ground?—There have been rare instances of upwards of 30 cwt. an acre.

437. What is the smallest you have ever known grown upon the same ground?—A hundred weight.

438. May we take it that the produce of the hop land varies from 30 cwt. to 1 cwt. upon the same ground?—There have been such variations.

439. Is manual labour in great demand in your country?—At present we have more men out of employ than we have had for the last seven or eight years.

440. From what cause?—I do not think there has been nearly so much labour as usual expended upon the hops this year. That is my opinion.

441. Mr. *Bersford Hope.*] Is that on account of the two great crops which you have had?—I should suppose that is it.

442. Mr. *Bass.*] Do you consider it injurious to the interest of the hop grower to grow large crops?—Yes, it is a losing game to him to grow large crops; perhaps one single large crop would not be so.

443. So that his interest is to grow what you call short crops?—His best years are those of a moderate crop.

444. Have you ever made any calculation as to the mean produce of the crop as taken between the large crops and the small?—Yes; if you got but a small crop, your expense terminates with little more than 24 *l.* or 25 *l.* an acre.

445. Supposing you have four cwts. an acre; what is the expense?—Then there will be some expense in addition to the 24 *l.* and 25 *l.* an acre.

446. What is the expense of the duty?—About 40 *s.* a cwt. altogether; that is what we call it in our district; 24 *l.* or 25 *l.* an acre is what we call the expense of cultivation, except picking, curing, and duty; that varies according to the crop; if we grew four cwt. an acre, that would put on 8 *l.* an acre, in addition to the 25 *l.*, then the expense of cultivating an acre would be 33 *l.*; if we grow 20 cwt. an acre, the last expense would be 40 *l.*, making a total expense of 65 *l.* an acre.

447. Mr. *Bass.*] Do you often make 65 *l.* an acre from your crop?—No, not such a crop as that.

448. Is a crop of four or five cwt. taken pretty nearly through the country generally, more profitable to the farmer than double or treble that amount?—That would be too low a crop to afford sufficient room for much profit.

449. Do you know how much was grown in 1853?—About 150,000 old duty.

450. Would that be an average of about six cwt. an acre?—I suppose it would be about that. I suppose the year 1853 was as good a year in the counties of Kent and Sussex for hop growing as we have had for many years; at least in those parts of the counties with which I am acquainted.

 451. Did

Mr. *L. Reeve.*

11 June 1857.

451. Did not you get a high price for a moderate crop?—Yes, they grew more than the average of six cwt. an acre in our districts.

452. Would it not appear from your evidence that the interests of the hop grower and the consumer of hops are rather conflicting?—I do not know how far the consumer has ever been affected by the price of hops. I am not aware that the price of beer to the consumer has been increased in consequence of the high price of hops.

453. Do you not know that there were certain brewers who raised their price 6*s.* a barrel, in consequence of the high price of hops?—There was a high price for malt also at that time.

454. Are you aware of that?—I was aware of that rise in the price.

455. Was not that advance in the price of beer in consequence of the rise in the price of hops?—It was generally considered that the price was advanced in consequence of the advance in the price of malt.

456. Are you aware that there was an advance of 6*s.* a barrel upon what was called pale ale in 1854. in consequence of the high price of hops?—I cannot say; I should say that the rise in the price of malt had more to do with it. I have been speaking of porter and common beers.

457. Are you aware that since the price of hops was reduced, and the price of barley was reduced 10*s.* a quarter, there has been a reduction in the manufactured article?—I have understood that it has been lower.

458. Can you tell the Committee any year when the price of barley was higher than it was last year?—I am not a grower of barley.

459. Mr. *Knight.*] What is the hop tithe per acre?—I think it varies in our district from about 17*s.* to 21*s.* I am not aware of any tithe higher than 21*s.* an acre; that is an extraordinary tithe.

460. What is your ordinary tithe?—That varies in our district from 7*s.* or 8*s.* to 3*s.* 6*d.* and 4*s.*

461. When you speak of 17*s.* 6*d.*, you allude only to the extraordinary tithe?—Yes.

462. *Chancellor of the Exchequer.*] Did not you state that the hop growers are most distressed in full crop years?—Yes.

463. Their interest is that there should not be a succession of years of full crop?—When they get a succession of full crops the duty operates upon them so much, that they certainly feel very great inconvenience and very great distress.

464. Is not the general rule with respect to agricultural produce that the grower is interested in a full crop?—I should think it is generally so.

465. Would it not be the case with the grower of wheat, the grower of barley, or the grower of hay, that he would wish to have a full crop?—We always cultivate for the best crop.

466. The best crop being the most abundant?—Yes, that is what I mean.

467. In the case of hops, abundance is no advantage to the grower?—No; it seems that in favourable seasons they grow more hops than can be consumed.

468. Is abundance of hops equally injurious to the grower in all parts of the country?—I should think not; of course there are districts where hops are worth 1*l.* or 1*l.* 10*s.* more than in others.

469. As to the question of quantity; is the highest abundance the least detrimental to the grower?—It does not affect them so much of course; you could easily imagine this, that there should be a crop of 10 cwt. per acre grown in two districts; one is a high-priced district, and the other is a low-priced district, and if there is 1*l.* a cwt. difference in the price, and the low-priced hop is at such a price as hardly pays for the cultivation, the one man would get a profit of nearly 10*l.* per acre, while the low-priced hop grower is not being paid for.

470. With reference to the abundance of the produce, is not the general rule that the grower would wish to produce only an average crop?—If the crop was not so variable in its product, of course the thing would be much easier to understand; for us, as planters, we could accommodate ourselves much better to the requirements of the consumer; but when we begin upon our plantation, we cannot tell what the result will be, and it may be that the next year is not a profitable year, and then it may be that the farmer will not keep the cultivation on; we do not know at the time that we enter upon it what will be the result in the course of three or four years.

471. What do you conceive to be the reason why the interest of the grower of

of hops is different in respect to the abundance of the crop from that of the grower of wheat or barley, or any other article?—It appears to me that the large amount of the duty adds to the difficulty in an abundant year.

472. Do you believe that if there were no duty upon hops the grower would not find abundance detrimental to him?—He would not be in the same situation that he is now in, by the accumulation of duty, and that would be beneficial to him, but that is a question which I cannot answer; I do not know what would be the result of that in the long run.

473. Suppose there were no duties upon hops, neither custom duty nor excise duty, do you believe that there would be the same disadvantages to the consumer and the same disadvantage to the grower, from an abundance in a certain year, as there is at present?—I cannot tell what would be the ultimate result of such an experiment as that; I think it would probably cause a revolution in the manufacture of hops for a time; the result afterwards would be, that the plantation would adapt itself to the circumstances, but the immediate result would probably be very disastrous; it would depend very much upon the crop that was produced at the time when this alteration came into effect.

474. Will you explain to the Committee in what way a revolution in the growing of hops would be effected?—I remember one circumstance that struck me rather forcibly. In the year 1854 there was an abatement of the Customs duty. I had an idea myself previously to that time that the foreign producer was not competent to send us hops which would be detrimental to the grower in this country. But in consequence of the alteration that was then made in the Customs duty, it created a feeling beyond what the actual quantity that was brought in, in consequence of the alteration, justified. That may be so; but however it was, it did create a very great difference, as was considered by all of us, in the price of the hops grown here in that year, I believe. And if such an effect as that should take place, and in a year when there is a large crop of hops in this country and there is a considerable importation, it would have a great effect on the price. I have no doubt that that would be felt probably for another year or two after that time. The hop grower will have produced the crop at the great expense of 24 *l.* or 25 *l.* per acre, and I do not think that the planters, as a body, are in a situation to bear such a change as that without its producing what I call a revolution in the hop-growing of this country.

475. Do you believe that the effect of the present protective duty upon native hops is to increase the quantity produced in the country beyond what it would be if both duties were abolished, or if the Customs duty were reduced to an equality with the Excise duty?—If I understand the question it is this: Do I think that the present extent of Customs duty tends to increase the home cultivation. I can hardly speak as to that; there would be a great many distinctions to be made before I could answer that clearly. It would have the effect, if the abolition were immediate, of reducing the home cultivation. I have very little doubt of that, however it might be ultimately, after they had passed through the ordeal of the change.

476. You describe the home grower as suffering from an abundant crop?—Yes.

477. If the foreign importation coming should diminish the quantity now grown by throwing some ground out of cultivation, might not that be advantageous to the home grower?—I could not imagine that; because if I understand the proposition rightly, if you introduce as many foreign hops as are produced at home, I cannot see how the producer here could be benefited by that.

478. At present the English market is uncertain, is it not?—Very variable; the prices are very variable.

479. The hop trade has sometimes been called a gambling trade; do you assent to that?—It has been so described sometimes, but I should hardly so characterise it myself; it may be speculative to some persons.

480. Do you think that that character in any way arises from the fact that cultivation is encouraged by the hope of years of scarcity?—I do not know how far that would operate; I could hardly speak to that; I do not think I can speak to the operation of that.

481. Is not the English grower tempted to grow as much as will supply the market in the years of scarcity?—I think that if hops were not a perishable

Mr. *L. Reeve.*

11 June 1857.

article, there would be enough grown to supply the wants of this country; and I think that this country is certainly as capable of growing hops to supply its wants as the foreigner by additional imports. I cannot see why they should not be affected simultaneously with us; they are generally affected by blight as much as we are, as I understand.

482. How many years will hops keep good?—That I believe varies very much, according to the quality; the best hops are capable of being preserved much longer than the inferior ones.

483. Mr. *Bass.*] What do you mean when you speak of their being preserved?—Keeping their full strength.

484. Mr. *Chancellor of the Exchequer.*] How long can inferior hops be kept without losing their strength?—The inferior hops deteriorate very much in a year.

485. Sir *John Shelley.*] Does not that depend not so much upon the quality of the hops as upon the way in which they have been kiln-dried?—If they have not been well-dried, of course they will perish very soon.

486. Mr. *Brand.*] When you speak of inferior hops, what do you mean?—The thin and inferior hops will not have the power of preservation that the thicker and stronger hops have.

487. Do you refer to the hops grown upon a peculiar soil?—No.

488. Do the Sussex hops keep better than the Kentish hop?—I cannot answer that question.

489. Mr. *Bass.*] Do you mean to tell the Committee that, as far as the depreciation of the hops is concerned, there is a smaller depreciation at the end of any given period on high-priced hops than there is upon low-priced hops?—I suppose that the high-priced hops are those of the best quality, and so that would be my answer.

490. Suppose you give 5 *l.* for the Sussex hops, and that on the 1st of October of the following year Sussex hops had again started at 5 *l.*, what would your hops, which you sold in October 1855, and which were worth 5 *l.* on the 1st of October 1855, be worth on the 1st of October 1856 for the brewer's purposes?—That is a question which a brewer could answer better than I could.

491. Do you ever hold your hops over?—Yes; but if I did I should not test the quality; I should not consume them myself.

492. Do you never sell in the same year yearling hops and new hops?—Yes.

493. Will you tell us the difference in the price?—No, I cannot tell you that, neither would it answer your purpose if I could; inasmuch as the variations in the price may not be all due to the deterioration of the quality if I kept 1855 hops till 1856 and sold the hops. The crop in 1855 produced 400,000 *l.* of duty and 4 *l.* was the price of a cwt. in 1853; when they only grew to the amount of 150,000 *l.* duty the hops were worth 6 *l.*; therefore, if such a duty as 1853 had followed that of 1855, that crop would be worth more money than they would the year before, though there would have been a deterioration.

494. Can you tell the Committee what would be the depreciation, supposing that the new hops on each 1st of October were at the same price?—I could hardly tell you that.

495. Is there no period at which hops become useless, or comparatively useless for brewing, and are only used in cases of extreme scarcity?—I could not speak to that, that is not my branch of the business. I do not think I can give you any information which would be sufficiently certain. It would not be the result of any experience of my own.

496. Do you know any one who is holding hops of three or four years' growth?—No.

497. Are you aware that a large quantity of hops of the growth of 1848 were sold last year?—I do not know it.

498. Would there not be a great depreciation in the hops of 1848, as compared with the hops of the present year?—No doubt they have been depreciated.

499. Is there not a period when the hops are much depreciated in value?—Yes, I have no doubt they do depreciate.

500. Are you aware that sometimes the grower mortgages his hops?—I believe so; I believe that advances are sometimes made.

501. To whom?—To the planter.

502. By whom?—It may sometimes be by the factors or merchants, if the planter has not a banker; it may be, sometimes, that the banker advances what is required. I have no doubt they might.

503. You spoke of the hops in 1854 being affected by a large importation of foreign hops?—Yes.

504. Can you tell the Committee what you got for your hops that year?—Much less than I should have done, as I felt at the time. I felt it very severely that those who had been more fortunate than I was, availed themselves of the circumstances of the period.

505. Did you ever get a higher price?—Yes, I have sold hops at a higher price.

506. In what year?—I think in 1840. I think I sold hops in 1840 at 12 guineas per cwt., that was following a succession of large crops.

507. Do you mean to say that there were no hops from your neighbourhood sold for more than 12 guineas in 1854?—No doubt those who were fortunate enough to avail themselves of the opportunity immediately before the trade, were thoroughly satisfied that there was a great quantity of hops to come in from abroad; the trade were not satisfied of that at first.

508. Are you not aware that some of your neighbours sold at much higher prices?—Yes, that would be justified as compared with 1840, for in 1854 they had no stock in hand, so that the much higher price ought to be obtained than in 1840 when we come to 1854; we had a short crop in 1853, not equal to the consumption; 1852 was pretty moderate; there was not considered to be any crop in hand in the year 1854; 15*l.* or something like that, was the price at which those hops were going.

509. Did not any planters make much more than that?—I think there may be a few sold at more.

510. Do you know what Captain Curtis's hops fetched?—No.

511. Did you hear that he got 20*l.* for them?—I do not know.

512. Did any man lose by growing hops in Peas Marsh in 1854?—No; if we did not get these years we never should survive the others.

513. Sir *John Shelley.*] You were asked whether you had not heard this trade sometimes called a gambling trade; can you give any information to the Committee as to the gambling which goes on with reference to the duty in the Borough?—No, I know nothing about it. I never betted upon the hop duty more than a sovereign in my life. I have heard of their betting.

514. Is not it regularly quoted as to the amount to which the duty is backed?—Yes, I understand that decreases; from report I hear so.

515. Have you not heard it stated that as much money is won and lost upon the question of how much duty will be levied, as at the Derby?—Yes, I have heard that.

516. Mr. *Beresford Hope.*] You stated, in answer to a question by the Chancellor of the Exchequer, that creating a perfect free trade in hops would produce a revolution in the trade; does not the cultivation of underwood entirely depend upon the hop?—Yes, of course the greatest value of the underwood is for hops, and if they could not use it for the purpose, the value of underwood would be considerably reduced.

517. Therefore, this Committee could not enter into the question of the effect of such a measure upon a hop country, without considering the underwood crop?—Yes; of course that is very much enhanced in value in consequence of the hop cultivation.

518. Would not anything that would reduce the value of hop cultivation in England necessarily bring the underwood in the market to nothing?—Yes; it would injure that property very much.

519. You stated that the result of an abundant crop was, that the farmers stinted their manual labour for the next year?—Yes.

520. Do not you very often find that, instead of stinting manual labour, they keep a small growth under cultivation?—Generally.

521. Then they do not stint the labour upon that?—The table that I have given shows that they reduce it.

522. According to this it appears that the plantations in Sussex and in Kent, from

Mr. *L. Reeve.*

11 June 1857.

from the period at which this table commences (from 1837) to 1850; it was not reduced in 1850 from what it was in 1837?—

523. Was there much reduction during the last two years?—Yes, I think there was some grubbing going on last year.

524. Is there any grubbing going on now for next year?—The planter does not do that till after the next crop.

525. Mr. *Bass.*] Are you aware of the statement of the Chancellor of the Exchequer, that there have been 19,000 acres grubbed up since last crop?—I have not stated anything with respect to that.

526. Mr. *B. Blakemore.*] Can you grub hop-land without the consent of the landlord?—That would depend upon the terms of the agreement; some agreements require that the same quantity of hops cultivated should be kept upon the farm; there is no prohibition upon some.

527. Is not the laying down an acre of hops an expensive thing?—Yes; the first year of planting we generally reckon at about 10 *l.* an acre; there is a clear year's expenses; there is no crop from that; then there is the second year to go on before you can get a return.

528. Is it usual that the occupier or tenant may grub up a hop garden once planted without the consent of the landlord?—Yes, generally; it is a general practice in our district.

529. Mr. *Beresford Hope.*] Is the evidence that you have given in reference to a district where the holdings are large or small?—In our district they are rather large holdings; they would generally be considered so.

530. In a district where the holdings are small, must not the evil of an uncertain crop be necessarily greatly increased, and is not yours therefore a favourable district?—We consider ourselves so.

531. Mr. *Brand.*] Are not the holdings in Sussex generally rather large?—Yes.

532. Is your district within what is called the Weald of Sussex?—I do not know; I do not know where the weald terminates.

533. Mr. *Beresford Hope.*] Is not your district flat ground near the sea?—Yes, we have considerable plantations in the immediate neighbourhood of Rye; within a mile or two.

534. Is it true that those years have been rather a failure?—When I speak of my own district I speak of that.

535. Do you go as far as Boileau?—No, Northiam is the boundary for the Rye duty.

536. Mr. *Chancellor of the Exchequer.*] Is it the practice of hop growers to sell their hops before the first instalment of the duty becomes due?—Yes, I think the greater part of the hops are sold.

537. Will that apply to small crops?—Yes.

538. Is it their habit to reserve a small portion out of the price, in order to make provision for payment of the duty, or do they apply the money to the cultivation of their farm, or other expenses, and trust to what may turn up at the time the duty is payable?—Every prudent and thoughtful man, where his means would enable him, would do so; but for those heavy crops he has little money to pay the large amount of duty, and the usual expenses; so that it is impossible for him to do it, or he might be disposed to.

539. What course does he actually resort to for the payment of the duty when it becomes due?—When the duty becomes due, if his credit is bad, he must sell some of his stock from his farm; our farmers in Sussex generally have other things besides hops on their farms. Perhaps we have, upon the average, in a hop farm of 100 acres, something like eight or ten acres of hops; it would evidently show that they have many others from which they derive an income besides the hops; the farmer is obliged to sell his stock of one part of his occupation if he is not a man of credit, and if he is a man of credit, of course he can avail himself of hiring money for a period.

540. Do you believe that, on the whole, the hop grower suffers much in consequence of the present arrangements of the duty than he would if the duty were payable at the time when he sells his hops?—I think an immediate change of that kind would be almost impracticable; there would be a great difficulty, I think, in procuring the money. Even now we find that the hop growers in some districts are hardly able to pay up their last duty; unless they had

had a prosperous year affording a considerable surplus, of course they could not meet the duty in November; the expenses and the moiety of the last year's duty would be a pressure upon them for a great amount at one period.

541. Mr. *B. Blakemore.*] Is there any restriction in your district as to the proportion that the hop ground shall bear to the general quantity of land?—Yes, often there is.

542. What is the proportion?—I do not think there is any general rule, because it must vary very much according to the nature and capabilities of the farms; there are different farms possessing very different capabilities; I think I know a farm of 300 acres, where there are 60 acres of hops, and I know another immediately adjoining, where the soil is as congenial, where the area is over 1,000 acres, and there are no more hops than in the other case I mentioned.

543. Have you ever had reason to complain of any inconvenience or harassing conduct on the part of the Government or their officers in the collection of the duty?—No, never.

544. Mr. *W. Martin.*] Do you think that the growers do or do not derive an important advantage from the knowledge that the present system affords them of the quantity of hops grown, and likely to come into the market each year?—No, I do not think they derive any advantage from the knowledge of those circumstances; I could hardly conceive that.

545. Mr. *Bass.*] You told the Committee that you thought that England was as capable of producing hops as any other country; would you be prepared to give a comparative opinion with regard to the quantity of foreign and English hops?—I do not know the quality of foreign hops; I have heard that there are some Bavarian hops much better than the English; I have seen some Belgian hops which are not so good as the English. I have seen some other hops which seemed to me to be better, and I am told that they command a higher price in the market than the Kent hops.

546. Would not it be a reasonable conclusion that they were of a better quality?—I should imagine that as to those hops.

547. Mr. *W. Martin.*] As a general principle, does not the trader generally possess a better knowledge of the quantity of produce in the market, and the value of that produce, than the grower does?—There can be no doubt of it.

548. There is no other crop as to which we have such accurate statistics as we have as to hops; is not it a great advantage for the grower to have the same information as the trader possesses as to the probable value of his crop?—I could not answer that question, yes or no, because I think as you do in part, that the trader does of course possess an earlier and a better knowledge of the crop; it is his especial business, and if he did not do that, he would not be a successful trader; therefore it becomes his especial business. But then I venture to say, that prior to the declaration of the duty, a great deal of the business has passed off before the duty is declared; there is a great deal in our country sold before the middle of November. They do not sell their hops so early in Mid Kent.

549. Sir *John Shelley.*] Do you think that there is an artificial value given to hops in the market, and that any hops command a higher value because they are known to be Sussex or Kent hops, than they could if they went into the market upon their own merits?—All dealers like to get Kent upon their pockets.

550. Does not a shopkeeper, who has to sell hops by the pound, almost invariably, on account of the Kent mark, buy the Kent hops to sell again?—I have heard (but whether it is correct I could not undertake to say), for instance, of the word Sussex being sewn out, and the word "Kent" put upon the bottom of the pocket by traders.

551. The Chancellor of the Exchequer asked you with reference to the advantage of a large growth of hops, do not you believe that the hop growers generally wish to see but a moderate crop?—If a high crop is general, of course there is a profitless year.

552. He has no objection to have a large crop himself, if his neighbour has a small one?—Of course the duty is not increased much by that. The fact is, that by a large crop the duty is increased, consequently the pressure of the duty is heavier upon them than if there is a small crop, and it must follow that the duty

Mr. *L. Reeve.*

11 June 1857.

is more to pay, and that he must send a greater quantity of hops to market to meet that large liability than he would if there was no duty; but still that is a distinct question, and I do not wish it to be understood that my answer goes to the extent that it would be an advantage to have no duty at all; but I should prefer a remission of the Excise, retaining the Customs duty. The grower here would be in a better position in that case; he would of course be in a better position as regards the hop duty, provided there was a Customs duty only; that is my general impression.

553. *Chairman.*] Are you willing to pay the Excise duty, as an insurance against foreign competition?—

554. Sir *John Shelley.*] Is not it the fact that, generally speaking, where the quality of the hops is best, and where the highest price is obtained, the crop is lightest?—Yes, I think it is.

555. That is to say, in the county of Kent, where they get the highest price, is the smallest quantity per acre?—It is rather less. I think within the period of years from 1837 to 1850 they got one hundredweight less than Sussex.

556. Do you know whether the Kent growers have interfered with the quality of the hops within a few years past by their endeavour to increase the quantity per acre?—I have heard of it.

557. Supposing there is a certain district which grows a small quantity of hops, which therefore gets a great price and pays a little duty, is not the duty, as regards that particular district, favourable to that district as against all others?—Of course.

558. Then do not you think that the duty levied upon hops practically is favourable to a particularly favoured district?—That is so.

559. Mr. *Loche.*] You stated, in answer to a question put to you, that the price of hops has never made any difference to the consumer?—Yes.

560. How do you account for that?—I cannot account for it. I can only say that such is the fact. The retail price, as far as I have always understood, has never been affected by the price of hops.

561. Did not you say that the price of hops goes down before the duty day?—Often it does. That would depend very much upon circumstances. Much would depend upon the circumstances in which the planters were placed at the time, because if there were only a few individuals, or only one district who were obliged to sell their hops as a matter of necessity, of course the pressure would not be felt.

562. Do you mean to say that that will happen if the pressure is pretty general?—Where it is pretty general, of course it would have an effect.

563. *Chairman.*] Do you consider that the duty rather tends to diminish the price of hops than to raise it?—Yes, for the period pending the payment of the duty.

564. Does it get up immediately afterwards?—Very often.

565. Mr. *B. Blakemore.*] The duty is now collected by the pound, and therefore varies according to the number of pounds brought to market?—Yes.

566. Therefore does the smallness of the duty depend upon the locality or upon the sorts of hops grown in it?—Upon both the locality and the hops; of the fine sorts you would not grow so many.

567. *Chairman.*] When the duty was postponed the other day, did not the price of hops go up in the Borough?—They did go up.

Lunæ, 15° *die Junii*, 1857.

MEMBERS PRESENT.

Mr. Ball.	Mr. Beresford Hope.
Mr. Bass.	Mr. Knight.
Mr. B. Blakemore.	Mr. John Locke.
Mr. Brand.	Mr. Wykeham Martin.
Sir Edward Dering.	Viscount Pevensey.
Mr. Dodson.	Sir John Shelley.
Mr. Hanbury.	

JOHN GEORGE DODSON, Esq., IN THE CHAIR.

Frederick Webster, Esq., called in; and Examined.

568. *Chairman.*] HAVE you been for many years practically connected with growing hops?—Yes, for the last 15 years.

569. Are you a hop grower at this moment?—Not at the present moment. I relinquished my occupation last Michaelmas. I am not a grower on my own account at the present moment. I have the management of property over what we call a large farm, on which there is a considerable hop plantation now.

570. Besides growing hops yourself, you have had the management of property on which hops were grown?—Yes, to some extent; something like 8,000 acres in East Sussex.

571. In what neighbourhood is that?—Principally in the neighbourhood of Battle, but also in the adjoining parishes. The parish of Ewhurst is one, which is a large hop-growing parish.

572. The parish of Ewhurst is close on the borders of Kent, is it not?—Yes; it is near a part of Kent.

573. Does it join Kent?—No.

574. What sort of land is that land, the Battle district, that you spoke of?—It varies exceedingly in quality, some is very light, free-working land; the other is stiff. In fact, it varies so exceedingly that it is difficult to say what the soil is on the average.

575. What is the rent of the land?—I should say that the average is 1 *l.* an acre in that neighbourhood.

576. What is the highest rent of land in that neighbourhood?—It varies very much. Some land in the neighbourhood of Battle is let as accommodation land, and that commands a much higher rent.

577. At what is the best land in that district let for agricultural purposes?—The highest I know is 25*s.* an acre for arable land.

578. Is that clay land?—No, it is not; it is rather a loamy soil.

579. Is there any clay land under hops?—Yes; a considerable portion of land used for hops is clay land.

580. What does the clay land let for?—£. 1 an acre.

581. What is the lowest priced land upon which hops are grown?—In the parish of Heathfield, I believe, there is a good deal of land at 10*s.* an acre on which they grow hops.

582. Speaking of your own district, what is the lowest price at which good land is let in that district?—As far as my own knowledge extends, I should say 12*s.* an acre.

583. Is any of that under hops?—A portion of it.

584. Is not hop-growing a very expensive business?—Very much so.

585. What amount of capital do you reckon to an acre is necessary for its cultivation of hops? an acre of good arable land adapted for growing corn?—The

F. Webster, Esq.

15 June 1857.

The cost of producing an acre of hops up to the time of picking is 22 *l.* If the Committee wish it, I can give a statement of the different items.

586. Could you give us the different items of which that sum is made up?—I take the acre at 1,200 hills at six feet apart, which is a statute acre. Many people in estimating the expenses take 1,200 hills 6 ½ feet apart, which in point of fact is one-twelfth of an acre more; the digging is 1 *s.* 6 *d.* a hundred, that will be 18 *s.*; the dressing, at 6*d.*, is 6*s.*; the poling, at 1*s.* 6 *d.*, is 18*s.*; the tying from pole work, 10 *s.*; chopping twice, at 10 *d.* a hundred, is 10 *s.*; shimering eight times, at 1 *s.* 8 *d.*, is 13 *s.* 4 *d.*; ladder tying is 2 *s.*; setting up poles blown down, 1 *s.* 6 *d.*; earthing in, at 3*d.* a hundred, is 3*s.*; striking up and throwing off furrows in each other alley, is 4*s.*; stripping and stacking, at 8 *d.* a hundred, is 8*s.* I am taking this calculation mostly upon the result of my own experience of land in the neighbourhood; of course it varies. Then rent is 1 *l.*; the extraordinary tithe is 16*s.*; other rates, tithes, and taxes amount to 10*s.* 4*d.*; the manure is 8 *l.*; poles 6*l.*, which makes 21 *l.* 1*s.* 6*d*; after which the expense of picking, and drying, and the duty is 36*s.* per cwt.

587. Sir *John Shelley.*] I understand you that you sometimes spend 8 *l.* for manure; is that farm manure, or artificial manure?—A portion of both. In fact I consider 8*l.* a very moderate estimate for well-manured ground; it is sometimes much higher.

588. *Chairman.*] Is not this expense of cultivation of 22 *l.* an acre incurred after the hop garden has been formed?—Just so.

589. It is the expense of carrying it on?—Yes; assuming that the garden is in full pole.

590. How many years is it before a garden comes to be really productive?—It differs very much. In cut sets you grow nothing. In bedded sets the first year of poling you may grow a pretty good crop.

591. The first year you get nothing?—The first year I do not expect anything; sometimes you pick a few bushels, but very seldom. You cannot call it picking.

592. Mr. *Wykeham Martin.*] Do you pay any tithes the first year?—No extra tithes. We pay half the second year.

593. Sir *John Shelley.*] In your district, which is generally the system adopted, that of bedded sets or cuttings?—Generally bedded sets; they are so much more certain. Cut sets in a dry spring are very often uncertain.

594. Can you state the expense per acre of cultivating for the first two years a new hop garden?—I have not made any calculation of it.

595. May we take it that practically the first year's picking amounts to nothing?—The first year of poling you may grow not a large crop, but you may have something.

596. What do you think is the expense per acre in the first year of planting a new hop garden?—Assuming there are 1,200 hills at six feet apart, three bedded sets to a hill, and that the price of bedded sets is about 2 *s.* a hundred, it would be 3 *l.* 12 *s.* an acre for the stock, as you may term it; then there is the expense of holing them out.

597. And there is the digging?—We do not generally dig the first year; we plough deep and harrow it down level, and then hole out the hills, and put in the setting, after which all we have to do is to keep the ground clean. Some parties, with the view of deriving some benefit from the land for the first year, will plant potatoes or turnips in the space between the rows. But it is a bad plan, I think.

598. Mr. *Ball.*] Have you included the manure in that estimate?—Yes; it is 8 *l.*

599. Sir *John Shelley.*] Generally speaking, will not the land require drainage, whatever it is wanted for?—Yes.

600. Do you think there is any extra expense for drainage for hops, beyond what would be necessary for other crops?—No, I think not, except in particular situations; for instance, the low grounds, where the outfall is not very good, of course there is an extra expense; but on good land I do not think there is any extra expense at all.

601. *Chairman.*] But in this estimate of 22*l.*, as the cost of production, have you taken into account the interest on the money laid out to form the hop-ground?—No.

602. When you say that 36 *s.* is the subsequent expenses, have you taken into

into the account the expenses of getting the hops to market; have you included the carriage to London?—Yes; I consider that 36 *s.* would cover it all.

603. Does it include the expense for the outlay in the oast-houses?—That is not a tenant's question at all; the oast-houses are provided by the landlord: it does not affect the grower in any way. The rule is, that the man growing his hops finds all the buildings necessary for carrying on the cultivation provided for him.

604. Must not a man farming his own land pay it?—Yes. Then of course there is a considerable capital sunk upon the necessary buildings, for which no doubt the interest ought to be charged.

605. Mr. *Wykeham Martin.*] Is not that included in the rent, in your estimation?—Yes.

606. *Chairman.*] When you say that the average rent of land is 1 *l.* an acre, do you consider that that includes the necessary buildings?—Just so.

607. How long will a garden last when it is formed?—It depends a good deal upon circumstances; I should say, upon the average, about 12 years.

608. Sir *John Shelley.*] With regard to the expense of building the oast-houses, either on the part of the landlord or tenants, or in the event of a long lease upon the part of the tenant, can you state at all what is the average expense, say of an oast-house, built for the purposes of four acres of hops?—It is not very often that an oast-house is erected for such a small plantation; a circle may be put up attached to the end of a barn, or something of that sort, which reduces the expense very materially.

609. Are you acquainted with the Weald of Sussex?—Not much.

610. Are you aware that, in certain parts of the Weald of Sussex, they have gardens upon lands of four acres?—I was not aware of that; of course the answers I have been giving now apply to my own district.

611. Of your own knowledge, what do you suppose to be the smallest expense of putting up anything like a decent oast-house, for a man successfully to dry the crop of hops?—Not less than 100 *l.* at the smallest.

612. Would not that be necessary for a man with only two acres of hops?—Yes.

613. Sir *Edward Dering.*] Did you ever know of an oast-house being erected for so small a quantity of land as that?—No, I cannot say that I have ever known an instance of that.

614. When the crops are so small as two or three acres in extent, do not they consider that one oast-house generally answers the purpose of several farms?—Very often.

615. *Chairman.*] How long will a plantation last on some soils?—In Kent, I believe, some gardens last 100 years; but in Sussex it varies very much according to the soil. On the average, I should say about 12 years.

616. What is the longest time that you have known them last in the Battle district?—I do not know of any gardens in that district that are more than 14 years old; there are only a few, I think, that are 14 years old.

617. Sir *John Shelley.*] Is that the longest period?—Yes, that is the longest period I can recollect in our district.

618. *Chairman.*] Do not you employ a great deal of manual labour in the cultivation of hops?—Yes; I think the manual labour comes to 12 *l.* an acre, certainly.

619. There is a great deal of expense in digging, is not there?—Yes; the digging will come to 18 *s.* an acre; 1 *s.* 6 *d.* a hundred.

620. Mr. *B. Blakemore.*] Are you speaking of the laying down or the cultivating?—Of the cultivating.

621. Sir *John Shelley.*] Will you state the average rate of wages in your district?—The wages per day are 2 *s.*

622. They are paid by the 100 hills, are they not?—They are paid by the 100 hills; they always earn more than 2 *s.*, at least if they are good workmen. I think a good workman will earn more than 2 *s.* per day at those prices; 2 *s.* 6 *d.* is the average.

623. *Chairman.*] Do I understand that this 12 *l.* per acre includes picking?—No.

624. Is not this charge of 36 *s.* per cwt. for picking and drying and duty the constant charge per cwt. everywhere?—Yes.

625. The abundance or scarcity of the crop will not affect that?—Certainly not, whether you grow 3 cwt. or 20 the expense per cwt. is the same.

F. Webster, Esq.

15 June 1857.

626. In an abundant year, would it be dearer than it would in a less full year?—No, I do not think that is the case; I have always found ample labour; I only remember one instance in which there was any difficulty in getting the hops picked, and that was in 1855, which was the largest crop that was ever grown, and certainly I was obliged to pay, I think, a little more for picking than I had generally done.

627. Mr. *B. Blakemore.*] Can you form any idea what is the average crop per acre?—Eight hundredweight I should say in our district; but of course in other parts of Sussex, in the neighbourhood of Rye, the average must be much higher.

628. How much per acre do you consider a fair crop in Sussex?—It depends very much upon the district.

629. Was not 1855 a most abundant crop?—Yes.

630. About what was the crop in your hop gardens in 1855?—The average was 23 cwt. per acre.

631. What is the shortest crop you have ever known?—I have known as little as half a hundredweight.

632. Mr. *Bass.*] What did you grow in 1854?—I think that year I grew 1 ½ cwt. per acre.

633. Mr. *Blakemore.*] And in 1856?—I grew 16 cwt. per acre that year.

634. Mr. *Bass.*] What was your net profit per acre in 1855?—That is a question that I can scarcely answer now; I have not the returns of the sales for my 1855 crop; they varied exceedingly in price; some were sold as high as 90 *s.* and others were sold as low as 40 *s.*

635. Mr. *Knight.*] What did you grow in 1853?—Nine hundredweight per acre.

636. Mr. *Bass.*] Did not the 9 cwt. in 1853 pay you more than the 23 cwt. in 1855, making due allowances for picking, drying, and bagging?—The profit was larger on the 9 cwt.; the price was high that year.

637. Mr. *Knight.*] Could you tell the Committee what we may put down as the average of your crop of 1855; what would it average all round?—About 60 *s.* per cwt.

638. And in 1856?—In 1856 I should think the average was very nearly the same.

639. What description of hops were they?—They were the grape and Colegate hops; the hops which are commonly grown in that part of Sussex.

640. Sir *John Shelley.*] With regard to manual labour, do you think that 12 *l.* per acre is an excessive amount?—No, I consider the estimate I made is a very moderate one.

641. As far as you are aware, that would probably be the expense of cultivating your crop?—Certainly, if the hops were cultivated as they ought to be. Some small growers plough instead of digging; but where hops are anything like well farmed, that expense must always be incurred.

642. Sir *Edward Dering.*] Does that include picking?—No, certainly not.

643. Mr. *Martin.*] Did not you include the expense of picking in the 36 *s.*?—Yes.

644. Mr. *Knight.*] What do you consider the lowest price that will be remunerative to you in a full crop year?—It depends very much upon how much you grow; it is rather difficult to say. If the question is, what I should consider a remunerative price if I grew a full crop, I should be very well satisfied with 4 *l.* a hundredweight, if I grew a good average crop.

645. Mr. *Bass.*] What would you call a good crop?—I should call 15 cwt. per acre a good crop.

646. Sir *John Shelley.*] Would you be satisfied, suppose you were taking a hop farm for a term of seven years certain, if you could be positive of getting 4 *l.* a hundredweight?—Yes, assuming that I should grow 15 cwt. per acre.

647. Mr. *Beresford Hope.*] That is 60 *l.* an acre?—Yes; in fact I should like to take a farm upon those terms to any extent of time.

648. *Chairman.*] In 1855 you sold upon the average at 60 *s.* per cwt?—Yes.

649. Have you known hops sold for less?—Yes.

650. How much less?—I have known hops sold for 32 *s.* a cwt.

651. Were those new hops?—They were what are called new hops, for the hops were sold before the other crop came in. I believe there were a great many hops sold in the Borough as low as 32 *s.*; it is a well-known fact.

652. Mr.

652. Mr. *Knight.*] In what year was that?—That was in 1855; they were hops of the last pickings. In 1855 the crop was so enormous, that the oast-houses were not sufficient to enable the farmers to pick them in good time, and they were obliged to let some of the hops stand till they were much deteriorated in value; I do not know the number that were deteriorated in value.

653. Sir *John Shelley.*] Did those injured hops pay the same amount of duty as the others?—Yes; in fact the parties had much better have left the hops on the poles.

654. In your experience, have you known any hops having been left upon the poles unpicked, in consequence of their not being ripe for picking?—I cannot say an instance of that has ever come under my observation; I have heard it stated that such has been the case.

655. Mr. *Beresford Hope.*] Was not it generally the impression that a good many hops had been left unpicked, in 1855, in Sussex?—I have heard it stated so; but I cannot say that I know an instance of my own knowledge, anywhere; the price happened to go up in the middle of the picking, which induced parties to pick everything; otherwise, I have no doubt, a good many would have been left on the poles.

656. Mr. *J. Locke.*] Have you known an instance of it?—Not of my own knowlege.

657. Sir *John Shelley.*] Is not yours rather a favoured district for hops?—No, I do not consider that it is; for many years I have had a large amount of land under cultivation, and we have always had the blight very severely; we are just on the edge of the favoured district, unfortunately.

658. Comparing it with the Weald of Sussex, is not it rather a favoured district?—The soil is certainly better; but I think we are as subject there to the influences of blight as anywhere else. I am speaking now of Battle particularly. The lowest parts are rather more favoured.

659. Mr. *Bass.*] Are some quarters less liable to blight than others?—Yes; very much so indeed.

660. How is that?—I cannot account for it; it is merely atmospheric influence. In the neighbourhood of Rye, for instance, they scarcely ever have a blight. There is the parish of Udymer which in blighting years is supposed to grow a ton an acre.

661. That is called the Udymer blight?—Yes.

662. There is a ton an acre at Udymer, and none anywhere else, is not there?—Yes.

663. Mr. *Knight.*] In that year, from the low price, were not hops left in the hands of the farmers, or sold to the dealers, from the very low prices?—The farmers were obliged to sell, and they were bought upon speculation by gentlemen in the Borough.

664. Sir *John Shelley.*] Is not it the fact, that hops being so tender an article, it is absolutely necessary to send them to warehouses almost built on purpose, and that it is very rarely indeed that the farmer is able to keep his hops during the winter without deteriorating?—Very rarely indeed; and the reason is, that there are very few farmers who have buildings adapted for the purpose.

665. But practically, is it not the fact, that from the nature of this production, the farmer, whether he wills it or not, is obliged to place himself in the hands of the factors?—In the hands of factors or warehousemen, or something of that sort.

666. Mr. *Brand.*] How long will hops keep if properly stored in a warehouse?—They deteriorate in value every year after the first year.

667. Can you state what is the amount of deterioration in value?—I cannot, because so much depends upon the quality of the hop in the first instance; some hops will keep longer than others.

668. And upon the drying of the different varieties, will the high class hops keep longer than the low class hops?—I have never had any goldings myself, and therefore I cannot say; but I should imagine not.

669. *Chairman.*] Do the hops lose in weight as well as in quality?—They are always made to lose in weight, but I do not believe they do.

670. Do not they become dry in keeping?—Yes. But I have always found that, if you keep those pockets at home, and weigh them, you find that they

always weigh more than the Excise weight; whereas, if you send them to the factor, the return which he sends is always 4 lbs. less.

671. Mr. *Brand.*] You speak of the grapes and colegates; are not those a low-priced rather than a high-priced hop?—They are an inferior priced hop.

672. Are they sold at half the price in the market of the goldings?—I should say the East and Mid Kent always command 40 per cent. more than the Sussex hops.

673. Speaking of goldings, have you ever attempted to grow the goldings?—I have; but I have failed. The soil was not adapted for them, as I take it.

674. What was the cause of that failure?—With me the plants died away fast; but what was the cause I am sure I do not know, for it was a fine piece of land, thoroughly drained, and in excellent order. They were also very subject to mould.

675. Mr. *Brand.*] Are the golding hops grown in the neighbourhood of Sussex?—Yes. There is a gentleman now in the room who has grown them for some time; but I believe he has not found it answer well.

676. Are you aware that they are being grown with success in any part of Sussex?—There are some planted in the neighbourhood of Rye. There have been some years where they have been good crops.

677. Mr. *Ball.*] Are the Committee to understand that the crops kept at home keep their weight, and the crops sent to the Borough lose weight?—I find it so.

678. Sir *John Shelley.*] And you regard it, either that there is actual loss of weight, or the factors in those sales show a loss of weight?—Yes.

679. Mr. *Ball.*] Are those factors' goods?—They come from the factors.

680. *Chairman.*] Are there any Farnham hops grown in Sussex?—No, not that I am aware of.

681. Mr. *Ball.*] Suppose I sent up hops in October that were sold in the month of December, would there still be a loss in the factor's hands?—I should say, upon the average, I never had any pockets gain; they generally make a reduction of 4 lbs. a pocket, you will find, in the long run, that they will considerably lose.

682. *Chairman.*] When you said that you had known hops sold at 32 *s.*, were those hops a year old?—They were not a year old; it was in the summer of 1856; they were sold in July, when it was evident that the growing crop would be productive.

683. Sir *John Shelley.*] Is it not the fact that they are not called old till the new hops come in?—No, they do not consider them as old, until the new crop is picked.

684. *Chairman.*] How high have you known hops sold?—£. 20 per cwt. is the highest I ever heard Sussex hops sold at.

685. Mr. *Bass.*] When was that?—It was in 1854; there were very few sold at that price, but there were some, I know.

686. *Chairman.*] How do you account for this great variance in price?—It is a very simple matter; it is a case of supply and demand, and if there is a great demand, but the supply is short, of course the price rises; 1854 was one of the shortest crops ever grown; not the shortest, but one of the shortest.

687. Mr. *Hanbury.*] What was the duty that year?—£. 47,369.

688. Mr. *Bass.*] Can you state what the duty was in 1840?—Yes, the duty in 1840 was 34,091 *l.*

688*. What was it in 1825?—£. 24,317.

689. In 1823?—£. 26,037.

690. You stated that the crop of 1853 was the shortest?—I said it was one of the shortest.

691. *Chairman.*] Do you believe the duty affects the price?—It affects it so far, that I believe it is the means of lowering the price.

692. Will you explain how that is?—One instalment of duty is always payable in November; so that, in fact, the great body of the planters are obliged to sell, whatever the price may be. It is a well known fact, and naturally the buyers take advantage of that. It is well known in the Borough that there must be a very large portion of the crop sold in November to meet the payment of the instalment of duty then due, and the buyers naturally take advantage of that, and buy the hops almost at their own price at that time.

693. *Chairman.*]

693. *Chairman.*] Is not the price of hops ruled by the abundance or shortness of supply in the market, irrespective of the cost of production?—Often crops are sold when the supply is certain, and, in fact, they are obliged to be sold, or if they are not sold, they are mortgaged.

694. Mr. *J. Locke.*] Sold from the producer's want of money?—Just so.

695. *Chairman.*] Do you believe that the producer recovers the price of the duty in an abundant year?—I do not quite understand the question.

696. He has to pay the duty; does he get that addition in his price?—Certainly not; I do not believe he does.

697. Sir *John Shelley.*] Has not it the contrary effect, rather?—I should say so.

698. *Chairman.*] Then, in an abundant year, is not the effect of the duty to increase the planter's losses?—Just so.

699. Sir *John Shelley.*] Is not that in consequence of his being obliged to force the market when there is most supply, in order to meet the demand made upon him for the duty?—Just so; that is the effect of the duty.

700. *Chairman.*] How much is the duty upon foreign hops?—Forty-five shillings per cwt. at the present moment.

701. Does that tend to increase the price of hops in the market?—I do not think the Customs duty affects the price of hops; for while the Customs duty has been lowered from 11 *l.* to 2 *l*, the price of hops has been very much the same, or rather higher since the Customs duties have been lowered. I have carefully-prepared returns here which will show that.

702. Will you state the effect of those returns?—I think the last alteration was made in 1847. If you take the years subsequent to 1847, the average price was higher than in the eight previous years, when there was an import duty during the whole time of 4 *l.* 10 *s.*, and for three years of that period of 8 *l.*

703. *Chairman.*] Do you believe that the Customs duty has not affected the price?—Judging from that, I should say not.

704. Mr. *Bass.*] We knew that if barley has 50 per cent. of duty put upon it, that 50 per cent would be added to it in the shape of malt in the market, but it would not be the same with regard to hops; is not that so?—It is so, I am convinced.

705. Is not it the case that hops are unlike anything else, so uncertain in produce, that there is but one thing that mends its price; that is, a short growth?—Just so.

706. Is not that the solution of the whole difficulty, which makes the growth of hops unlike everything else?—Yes, it is the most uncertain thing that is grown.

707. Did not you say that the duty put upon it is not so great as to affect the price of the article in the market?—I was alluding to the Customs duty. It appears from these returns that I have quoted that during the years when the highest amount of duty was imposed, the price was lower than when there was a small duty.

708. Mr. *Brand.*] Do you argue that if the Customs duty were further reduced, the price of hops would rise?—I am not prepared to say that. I merely state the fact. All I know is, that when the import duty was reduced in 1854, it had the effect of sending foreign hops up 1 *l.* a cwt. They rose 1 *l.* a cwt. immediately.

709. Mr. *J. Locke.*] Do you consider the amount would go into the pocket of the foreigner?—Yes, of course; he could afford to sell them cheaper.

710. He would not take less than the market warranted?—No, of course, he would not; he must be content to take the market price of the day, whatever it is.

711. Sir *John Shelley.*] Upon the average of years, supposing there was no Excise hop duty, the grower in this country could afford to compete much better with the foreign grower?—Undoubtedly.

712. Therefore, supposing the duty were taken off, would not the home-grower be equally well able to compete as he is now with the foreign grower?—That is my impression.

713. Mr. *Knight.*] Is it the case when the duty was taken off the foreigners raised the price of foreign hops 1 *l.* a ton?—I only say it is a well known fact in the Borough.

F. Webster, Esq.

15 June 1857.

714. And the foreigner put this amount in his pocket, and we pay as much for hops as we should have done with the larger duty?—Yes.

715. Mr. *Bass.*] Did I understand you to say that we got hops no cheaper in consequence of the duty being taken off foreign ones?—I do not think so. The effect of reducing the duty half was to increase the price 1 *l.* per cwt.

716. Mr. *Martin.*] You mean the price of hops in fact?—Just so.

717. Mr. *Knight.*] We transferred the 1 *l.* per cwt. from English pockets into the pockets of foreign growers?—Yes; or into the pockets of the people who held the hops of that very year.

718. Sir *Edward Dering.*] Did it go into the growers' pockets?—I should say not, decidedly. It could not have gone into their pockets, because the hops were sold before.

719. Sir *John Shelley.*] With regard to this question of duty on hops, that it is always called a gambling duty: are you aware that there is a great deal of betting upon the duty?—Yes, it is well known that it is so.

720. Is not there a great deal of money lost upon it?—It is stated that it is as much as upon the Derby; everybody in the Borough has something to do with it, as well as everybody in every town that I know of.

721. Supposing the duty were payable at the time of the sale, or within six months of the appointed period, instead of having a long time, as the grower has, to pay the duty, do you think the effect might be to reduce the power of gambling and betting?—Not at all.

722. Do you think the paying the duty in a shorter time would be detrimental or otherwise to the English grower?—I think it would be beneficial. It would prevent a great many people who have not sufficient capital from entering into hop-growing as they do now.

723. Do you think that the time which is allowed for the hop grower to pay the duty is invariably detrimental to the great body of hop growers?—Decidedly.

724. And especially to small ones?—It is so far detrimental to them that it induces them to enter into an occupation which they would not dream of, I think otherwise, for want of capital.

725. Mr. *Knight.*] Did not you say that November was the month in which they forced hops into the market?—Certainly. One moiety is payable in May, and the other in November; and of course at the November payment there is always a large crop of hops in the Borough, and it is known that they must be sold.

726. The duty is not for the hops that have been just grown during the summer, but for the hops of the summer before?—Yes.

727. Then they have already received the money for them?—Yes; that is the effect of having such long credit.

728. Sir *John Shelley.*] Is that always so?—It does not always follow that they have received the money; the assumption is that they have.

729. Mr. *Knight.*] Do you think the putting the duty earlier in the months of December and January would be an advantage to them?—No, I do not think that.

729*. Did not you state that it would be an advantage to make the duty payable earlier?—I do not think I could have understood the question if I said so.

730. Sir *John Shelley.*] I understood your answer to be, that you thought that if the duty were payable earlier it would be an advantage, because the man of small capital will no longer embark in it; is not that so?—Yes.

731. Mr. *Knight.*] Do you think it would be a good thing to reduce the plantations in the country?—So far it would be a good thing, that it would tend to increase the price. If you reduce the amount of hops grown in the country, the consequence would be a rise in the price, and deter men from entering into hop-growing without sufficient capital; that, I think, is one result, so far as my experience goes; they involve themselves in great difficulties, and it is liable to depreciate the land likewise.

732. When a man enters into a farm without sufficient capital, is not the farm depreciated?—Undoubtedly.

733. But especially if he be growing hops, does he not require a large amount of capital?—It must be so in these days, when there are so many artificial manures.

734. Mr. *Martin.*] Is not it considered the proper course to cultivate hops entirely with artificial manure?—It may be, but it is a system that I do not adopt, for I have farm-yard manure. My system has been to manure in winter with farm-yard manure, and in summer to dress with artificial manure; when I have not had sufficient farm-yard manure I have generally used rags.

735. Does not that impoverish the remaining part of your farm?—I consider that, with the advantage of guano and other artificial manures, I have kept the rest of the farm in good condition.

736. Do you confine the artificial manure to the other crops, and take the other manure for the hops?—Yes; that is practised to a great extent in all hop-growing districts, I should say.

737. Mr. *Bass.*] Can you tell me what proportion of hops there are on the average of years sold before Christmas of the growth of the year?—I should say certainly two-thirds.

738. It has been stated before this Committee that seven-eighths is the average sold?—It is impossible to tell it; I should say the parties who would be most able to give an answer to that question are some of the factors in the Borough.

739. Mr. *Ball.*] May I ask if I correctly understand your answer to a former question; did not you say that if the old duty were taken off, the duty upon English hops and the duty upon foreign hops, the English grower of hops would compete with the foreigner?—Yes, that is my impression.

740. Mr. *Knight.*] Are you aware that Sir Robert Peel, when he reduced the duty to 45 *s.*, stated that he thought it would be a sufficient protection in general years?—I am not aware that he stated that.

741. If it is an efficient protection, except in very small years, can the circumstance that the price of hops has been higher since the duty has been fixed than it was previously be placed to the account of the duty being lowered?—No, I did not mean to say that at all; I was merely saying that such was the fact, and that the Customs duty has had very little to do with the price of hops.

742. Does a Customs duty of 45 *s.* a cwt. generally exclude a great part of the foreign hops?—I do not know that it does; the importations are very large.

743. Mr. *Ball.*] Is there always an importation?—I believe constant every year, for the last seven or eight years; I do not know what it is this year.

744. *Chairman.*] Do you consider the present duty anything more than a countervailing duty?—No.

745. Considering the restriction that English farmers are subject to by the Excise, and that it often forces upon them a premature sale, do you think that 45 *s.* upon foreign hops does more than counterbalance the Excise duty?—Certainly not; that is my impression.

746. Mr. *Brand.*] What do you understand by a countervailing duty?—I take it to be, in this instance, that the effect of an import duty would be to raise the price of foreign hops in this country, so that they could not be imported except at such a price as would leave the English grower a profit.

747. Is not it the fact, that the Customs duty is more than double the Excise duty at the present moment?—Yes, it is; but you must look at it in several ways. The amount is more than double; but then the effect of the Excise duty operates in many ways.

748. You spoke of the restrictions imposed by the Excise duty; is not it the fact, that the foreign importer is also exposed to certain restrictions by the Customs duty?—I am not aware how hops are imported.

749. Have you any knowledge upon that point?—There may be some; I am not aware of any.

750. *Chairman.*] Is the foreigner interfered with in bagging and drying his hops?—Not that I am aware of.

751. Is it not the fact that he pays the duty when he sells the hops, and not before?—He pays the duty when he sells the hops, but not before; as soon as he sells them, and takes them out of bond.

752. He does not pay the duty at a certain stated time?—No.

753. Is not it the fact, that the home grower does?—The home grower is obliged to pay it at certain stated periods, whether the hops are sold or not, and at whatever prices.

754. May not the Excise duty of 1 *l.* on the home grower be as oppressive as

F. Webster, Esq.

15 June 1857.

as the foreign duty of 45 *s.*?—It may be; because he may be damaged in several ways.

755. Sir *Edward Dering.*] Supposing the Customs duty and the Excise duty be taken away, should you consider the position of the grower to be improved or deteriorated?—My own impression is, that the grower in this country would be benefited; looking at the results of lowering the import duty to what it is now, for the import duty does not affect the price at all: whereas, it is very well known that the Excise duty operates very injuriously upon the home grower.

756. Is it your opinion that the cultivation of hops would extend, in the event of the Customs and the Excise duty being done away with?—No, I think not; I know it is a prevalent idea that it would; but it must be borne in mind that it is only a particular district that can grow hops. You cannot grow hops beyond a certain limit north; even in Herefordshire, they are subject to be affected by the early frost in the winter.

757. Sir *John Shelley.*] Looking at the difficulty of the grower, and his exposure to competition at particular times, which is brought upon the grower, in consequence of having the duty to pay, and comparing that with the Customs duty as a protection from the importation of foreign hops, is it your opinion, that looking at the question as a whole, the growers would be really benefited by having no duty to pay, and by being exposed to foreign competition?—In my opinion certainly they would.

758. Mr. *John Locke.*] Have you given your attention to the expenses incurred in growing foreign hops?—I cannot say that I have; I have no means of arriving at those results.

759. Can you state the quantity of land that could be brought into hop cultivation in foreign countries?—No, I cannot.

760. Have you considered what the capabilities of the foreigners are as to the production of hops, and the quantity that they could produce?—No.

761. Have you likewise considered this other question; whether or not the hops which are produced abroad, are liable to the same diseases as the hops which are produced here?—Unquestionably they are.

762. Do you know that from good information?—I do not know it from my own positive knowledge, but it is a well received fact that it is so. I do not suppose that the hops grown abroad are exempt from the failings that the English hops are exposed to.

763. You gave it as your opinion, that with regard to this country, you did not think that any much larger quantity of land could be brought under cultivation for hops, than is at present cultivated; is not that so?—I do not mean to convey that we cultivate all the land that we could, but we cultivate all the land that we consider best fitted for it.

764. Have you considered the same question with regard to foreign land?—No.

765. Sir *John Shelley.*] With regard to the cost of production abroad, may we take it for granted, that the hops will be cultivated at less expense than in this country?—Yes.

766. That is with regard to labour?—Yes.

767. With regard to the other expenses, with regard to the question of building oast-houses, and the other means of preparing the crop, must there not be the same expenditure required abroad, that you will require in this country?—To produce a good article, undoubtedly there must be a considerable outlay.

768. If the article was not as well prepared as at home, would you be of opinion that the home grower need fear competition?—Not in the slightest degree; and if they do, the brewers, as a rule, will always take home grown hops in preference to foreign hops, with the exception of the choicest Bavarian hops, which come into competition with the East and Mid-Kent hops.

769. Therefore, as regards the price they get, you do not apprehend that, even with reference to that, the foreigners can produce the article?—Certainly not. I know I have been informed in the Borough, that when foreign hops have been sold at 6 *l.* per cwt. the importers have lost by them.

770. Sir *Edward Dering.*] Do you speak from any personal knowledge of the cultivation of hops abroad?—No; I do not.

771. Mr. *Knight.*] Must not that depend a good deal upon the price of labour there?—Certainly.

772. If the duty were taken off, at what price upon the average of years, do you calculate that the English hops could be produced?—My answer will apply to the Sussex hops.

773. At what price can Sussex hops be produced, taking an average of years, supposing the duty to be cleared off, so as to leave a good profit?—I should say that, if the Excise duty was taken off, the Sussex hops might be sold at a profit at 66 *s.* a cwt.

774. Mr. *Wykeham Martin.*] You told the Committee just now, that you should be glad to grow them at 4 *l.* a cwt., and the duty is 18 *s.*; how do you reconcile your present answer with that answer?—It is very nearly so; the duty is about 17 *s.* 7 *d.*, that is a difference of about 3 *s.*; it is very nearly the same thing.

775. Mr. *Hanbury.*] Do you believe that the foreign hops are as liable to blight as the hops grown in England?—I am not able to answer that question, for I know nothing whatever about it.

776. Mr. *Brand.*] I think I understood you to say that your opinion was, that the duty did not affect the price?—The Excise duty has not had the effect of raising the price; it has had the other effect, in my opinion.

777. *Chairman.*] Do you believe that the Customs duty does not benefit the producer?—I can only judge from the effect of the alteration of duty on several occasions to the present standard.

778. And do you also believe that the Excise duty does inflict a serious injury upon the grower?—Most undoubtedly; there can be but one opinion upon that point on the part of anybody who has grown hops.

779. In an abundant year, do you think that the grower loses the amount of Excise; that, in fact, he pays it out of his own pocket?—Unquestionably, it must be so, if he sells the crop at less than the cost, which is often the case in the Sussex hop district.

780. Omitting your belief about the effect of the Customs duty, and supposing the Customs duty to act as it is supposed to do, does it not keep out the foreign hops to a certain extent, and raise the price of home-grown hops?—It is supposed to do so; I do not believe it does.

781. Does not the grower pay the Excise duty out of his own pocket in years of abundant crops?—Yes, the grower is obliged to.

782. Is he not supposed to gain 25 *s.* a cwt. in years of scarce crop, through the operation of the Customs duty?—I presume so.

783. Taking that view of the question, he pays out of his own pocket nearly 1 *l.* on every cwt. of an abundant crop, and gains 25 *s.* on every cwt. of a scarce crop; can such a system benefit him?—No, I think not.

784. Mr. *John Locke.*] Did I rightly understand you to say that this duty is paid by the producers?—Yes, very often it is; I do not say that it is always the case.

785. And did you likewise say, that the reduction of a Customs duty would make no difference in the price of hops in this country?—I am not prepared to say that; I merely take the facts as I find them.

786. Do you think, in the present case, that taking the Excise duty off hops would be of any advantage to the consumer?—No, I do not think it would; I do not see in what way it would.

787. Do you think that taking the Customs duty off hops would be any advantage to the consumer?—No, I do not think that it would be any advantage to him.

788. Do I understand your opinion to be, from all these facts, that if you take off both these duties the consumer would not be benefited at all?—I do not see that he would; the grower is the party who would be benefited.

789. If there be an English duty of 18 *s*, and a foreign duty of 45 *s.*, were both to be continued, or both to be taken off; which would be best for the English grower, to continue the duties as they now are upon both English and foreign hops, or that both should be taken off?—My opinion is, that to take both off would be the best, as far as the interests of the home grower is concerned.

790. *Chairman.*] Is not the theory of the present system of the Customs duty and the Excise duty, this, that, whatever the grower loses by the Excise duty, he is to gain by the protection afforded by the Customs duty?—Just so.

791. In the year 1854, was not the Customs duty reduced?—It was.

792. Was not that a small crop year?—Yes; there was a very small crop; the duty was only 47,000 *l.*

793. Do you consider that it was fair dealing by the grower, to reduce the Customs duty in that year?—No, certainly not. It was not fair dealing by any means.

794. For whose benefit was that done?—The only parties who were benefited by it were the brewers; the intention was, no doubt, that the consumers were to be benefited.

795. Mr. *Brand.*] Was not that done with a view of benefiting the consumers?—I should imagine that it was done with that view. I should imagine that the Government would not have done it with any other view. I do not imagine that they would have done it, if it had been understood that the practical effect was to benefit the brewers.

796. Sir *John Shelley.*] May we not presume that the idea of the Government was, that, in short years, the Customs duties would prevent the bringing in of hops?—Yes.

797. And that therefore they reduced the Customs duty?—They reduced the Customs duty, I take it, upon that ground. I do not know what other reason it was done for.

798. *Chairman.*] You say that, taking off the Excise duty and the Customs duty, would not benefit the consumer; do you say so, because you think it would not affect the price of hops; or because you think that, with regard to the price of beer, it would not make any difference?—It is my opinion, that, with regard to the price of beer, it would not make any difference; for the quantity of hops used in brewing is so very small, that it is a very small item indeed in the cost of the production of beer.

799. Do not you think that it would affect the consumer in the quality of the beer?—It might do that; I do not imagine that it would affect him in price; no doubt, if hops were cheaper, they might be used more by the brewers; they would use a larger quantity, probably.

800. Have you any reason to suppose that brewers use substitutes for hops?—I cannot say that of my own knowledge. It is generally supposed that they do.

801. Therefore, might not cheapening hops so far benefit the consumer?—So far, I have no doubt that it might.

802. With respect to the restrictions to which the planters are subjected by the Excise, are not there many complaints about them?—Yes; they are generally very much complained of. We are not allowed to move a pocket of hops for 24 hours after they are weighed and marked by the Excise; and we are also obliged to mark them with the name of the parish where they are grown, which is a disadvantage to us, no doubt.

803. Are not you also liable to be visited at any time?—Yes; under certain penalties, in case of any infringement of these regulations.

804. Mr. *Brand.*] Have you personally found any inconvenience from these restrictions?—No, I cannot say that I have.

805. Sir *Edward Dering.*] When you say that it is a disadvantage to have your hops marked, do you not refer to the Sussex growers?—Just so.

806. *Chairman.*] Do you know many cases of prosecution of persons for recovering the duty?—Not many; I have known such instances.

807. Have there not been a number of Exchequer writs?—No.

808. Have you ever known a great number of instances in any one year?—I think that in 1848, or 1849, there were a great number.

809. You mentioned just now an objection respecting the marking; do you think that it affects the Sussex hops?—Yes, no doubt it does. Many Sussex hops are certainly as good as hops from the Weald of Kent; but I think it always has the effect of getting 4 *s.* or 5 *s.* a cwt. more for the Weald of Kent hops than for Sussex hops, generally speaking. I do not say that it is always so. I certainly think it makes 4 *s.* difference, at least.

810. Supposing you had two hop plantations adjoining each other, one in Kent and the other in Sussex, producing hops of the same quality, would the Kent fetch a higher price than the Sussex hops?—If I were in that case, I should carry all my hops to the Kent oast-house, because, if they bore the Kent mark, they would be sold for Kent hops.

811. Have

811. Have you ever heard of that being done?—Of course; it has often been done when parties live on the boundary of the county.

812. Do persons who buy hops go by the mark, rather than by the quality of the hops?—Very often they do. If you put two samples on the table without saying where they are grown, very often you will find that the Sussex grown hops will have the preference over those grown in the Weald of Kent.

813. Sir *Edward Dering*.] Do not you think that, in all probability, if there were not this regulation with reference to marking, it would lead to great frauds?—Yes, I think so, unless you were compelled to carry out these regulations, and to put a mark upon the hops.

814. Sir *John Shelley*.] Would not the practical effect in that case be that a man who wanted to buy a quantity of hops would buy by his own judgment of the quality of the sample; and that the best judge would buy the best article, and the man who did not know his business, and who now buys by the mark, would in all probability get the worst article?—Undoubtedly that would be the effect.

815. In fact, it would be with hops as with anything else, that the man who was the best judge would get the best article?—Yes.

816. Is it not the fact now that half the buyers do not trouble themselves with the samples, but buy according to the mark?—Yes.

817. When a grocer sells hops by the pound, and has a pocket of hops standing at his door, is it not the case that he takes care to have the Kentish mark upon the pocket?—Yes; I believe that is done.

818. *Chairman*.] Does not the present system in some respects lead to fraud?—That is the effect of it, of course; if Sussex hops are sold as Kent hops, there is a fraud upon the Borough; there is no question of that.

819. Mr. *John Locke*.] Is not that because the Kent hops are worth more than the Sussex hops?—No one can deny that choice Kent hops are worth more than the Sussex hops.

820. *Chairman*.] Is not it said that there are now Sussex hops put into Kent pockets?—No doubt; it is done by the retailers.

821. Does not the present system, therefore, in point of fact, lead to fraud?—Yes.

822. Mr. *Knight*.] Would not it be much easier to sell Sussex hops and call them Kent hops, if there were no mark upon the pocket, than it is now?—That is a very simple process.

823. *Chairman*.] If there were no mark, would not you go upon the principle of *caveat emptor*?—Yes.

824. Do you see any necessity for a Government mark upon hops more than upon wine, or upon beer, or upon any other article?—No; I do not see any necessity for that; as part of the system of Excise of course it is necessary.

825. Are not the public as competent to take care of themselves in the case of hops as in the case of any other article?—Yes.

826. Mr. *John Locke*.] Is not there a difference in the nature of the article between Sussex hops and Kent hops?—Yes; the East and the West Kent hops are different in quality from the Sussex hops. My observations refer to the Weald of Kent.

827. Could any person tell that difference of quality?—He can tell the varieties of hops from each other.

828. Could any man living tell, by looking at hops, whether they were grown in Kent or in Sussex?—No; if you put down a sample, and asked whether they were grown in Kent or in Sussex, I do not think anybody could tell you.

829. Do I rightly understand you to say, that the hops grown in Kent are different in quality from the hops grown in Sussex, on account of the difference of soil?—I did not say that. I said that it was a different sort of hop. It is the golding which is grown in those parts of Kent.

830. Is not the hop itself different, according to the soil on which it is grown?—No; a grape hop is a grape hop let it be grown where it may.

831. Would it be of the same quality if it were grown in Sussex, as if it were grown in Kent?—I think it would, if it were grown in the Weald of Kent. I am not speaking of the choice quality of hops.

832. Supposing it were grown in the Canterbury collection, would it be the same as if it were grown in Sussex?—Of course the soil must have some influence upon the hops.

E. Webster, Esq.

15 June 1857.

833. If the plant were the same, could you tell the one from the other?—If the one hop is grown upon a certain soil for a certain time, no doubt it acquires a distinct characteristic by which you may know it.

834. Do not you think that it is advantageous that there should be a mark upon the pocket, if it could be properly carried out, so that persons could not be deceived upon that point?—I think that if the buyer knows his business, he would know it. He could tell the quality of the hops by the smell.

835. But could he tell whether it was grown in Kent or in Sussex?—Certainly not, if he took the same quality of hop.

836. Sir *Edward Dering.*] You have told us that upon the present system tradesmen are rather inclined to fraud with regard to the marking; is not that so?—As far as the retailer is concerned, I believe there is no doubt that they are.

837. I presume that your observation is confined solely to the retail trader; you do not mean to convey the impression that the hop merchants, or the hop factors, do the same upon a large scale?—No, I should say not.

838. Are you aware that there is a great penalty attached to putting a wrong mark upon a pocket of hops?—Yes, I am aware of that.

839. Have you known any instances of that of your own knowledge?—Not to my own knowledge.

840. Is it not generally done to hops grown in one parish in order to indicate that they have been grown in another parish?—Wherever it is done, of course it must be done when the hops are out of the grower's hands. What passes in the Borough I cannot tell.

841. Sir *John Shelley.*] Are not the hops sold by a sample drawn out of the pocket?—Yes.

842. Upon opening it, does not the buyer make up his mind whether it is the article that will suit him or not?—Yes.

843. Does not he judge by means of the sample of the character of the hops?—Yes; he judges by the sample.

844. Do you know any reason why a different mark for hops is to be granted more than for other things?—No.

845. Mr. *Brand.*] Is there any penalty attached to the retail dealer for selling hops under a false name?—I do not know that there is a penalty attached to him; of course he might be indicted for a fraud.

846. Mr. *Ball.*] Is not the fact this: that if you retain the mark, it is beneficial to the Kent grower; and if you remove the mark, it is beneficial to the Sussex grower?—Yes.

847. It has been supposed for a long period of years, that hops grown in Kent have an advantage over hops grown in Sussex?—Yes.

848. Whether correct or not, that is the opinion?—Just so.

849. If the mark were removed, would it not be a disadvantage to the county which has the best name, and an advantage to the county which has the worst name?—Yes, certainly; it is so.

850. Mr. *Beresford Hope.*] That is not the whole question, because the Weald of Kent is inferior to East and Mid-Kent?—Certainly so. There is a great variety between the two.

851. Taking a parish in the Weald of Kent; is not the mark an advantage to Mid and East-Kent, and a disadvantage to the Weald of Kent, as compared with Mid and East-Kent?—Yes.

852. Mr. *Wykeham Martin.*] Is it true, that the grape hop, which is grown in the Weald of Kent, produces a different price from the grape hop grown in the Weald of Sussex?—Certainly.

853. Mr. *Knight.*] To what extent is that difference?—To the extent of 3 *s.* or 4 *s.* a cwt.; 4 *s.* I should say. I believe the Sussex hops are equally good to those grown in the Weald of Kent. I may state, with regard to a question which has been put to me by the Committee, that for the eight years from 1847 to 1854, subsequent to the reduction of duty, there was, upon the average, 47,509 acres, and the duty was 164,385 *l.* and the price was 6 *l.* 17 *s.* 6 *d.* That was the average price for the whole kingdom. Upon the previous eight years, from 1839 to 1846, during the whole of which time there was an import duty of 4 *l.* 10 *s.*, and for a certain portion of that time of 8 *l.* 11 *s.*, the acreage was 46,690 *l.*, and the duty 154,043 *l.*; and the average price, at that time was 6 *l.* 11 *s.* 6 *d.* Therefore, it appears that there has been an increase of price of something like 4 per cent. for the eight years subsequent to the reduction

reduction of duty, although there was a larger acreage under cultivation during the whole time.

854. Mr. *Knight.*] Have not you said, that you can produce Sussex hops at 65 *s.*?—Yes, if the duty were taken off.

855. At the present moment, the duty is 17 *s.* 7 *d.*; is not it?—Yes.

856. Supposing that hops can be sent from Belgium, and sold at the price of 40 *s.* a cwt., which, with the present duty of 45 *s.* makes 85 *s.* upon the whole, can you compete with them?—Certainly.

857. Suppose that the 45 *s.* were struck off from the Belgian hops, which are sold at 40 *s.*, could you compete with them?—I have no fear of any foreign hops being sold at 40 *s.* for any considerable time; they must rise considerably if they continue to import them.

858. Have you heard that the price of hops from Belgium has been 42 *s.* a cwt., for the last 14 years?—No, I have not heard that; I do not know what the price has been.

859. Mr. *Ball.*] You have been asked, by a Member of the Committee, if there was any other land in foreign countries that could be brought to produce hops. When the question was put to you with regard to England, you could give a positive and definite answer to it?—Yes.

860. But you could not give such an answer as regards foreign hops?—Certainly not; I do not think any man could give an opinion upon that.

861. Supposing that the produce of hops in foreign countries has no limit as to quantity, do not you think that on the reduction or sweeping away the duty, they would be sent over?—They would be sent over; and so far, of course, he could afford to sell his hops at a less price than he had done before.

862. Do not you think that that is a very important part of the consideration before we can answer this question; knowing that in England you have a limited space which you cannot extend, but that abroad the grower has unlimited space, and may extend the space if the duty were taken off; has not he an immense advantage, and is not the English grower at a great disadvantage?—It seems to me that the question goes on the assumption that the supply might be unlimited; but it must be borne in mind that the hops abroad are subject to the same diseases as they are in England, and therefore when they have the largest acreage they would often grow the smallest quantities.

863. *Chairman.*] If I understand your argument rightly, it is this, that taking off the Customs duty would benefit the foreigner, but that taking off the Excise duty would be a still greater benefit to the home grower; is not that so?—Just so.

864. Mr. *John Locke.*] Do I rightly understand you to say that taking off the home duty would be a great benefit to the home grower, notwithstanding that you took off the Customs duty at the same time?—Yes, that is my opinion.

865. Mr. *Knight.*] Do you assume that the foreign hops cannot be sold in London under 45 *s.*?—I should very much doubt whether any foreign hops in London could be sold at less if the duty were taken off.

866. Sir *John Shelley.*] If the market were thrown open to the foreign produce, and there was an extra demand in consequence created, would not the price on the other side of the water rise?—If there was an extra demand created, that would be the case.

867. Mr. *Knight.*] Could an extra demand be created without throwing some of our hop-gardens in England out of cultivation?—I do not know; the demand goes on increasing every year, as I take it. The demand for exportation is enormous, and great quantities that have gone out of the country now for the last two or three years, and the demand is keeping up.

868. Have you produced sufficient to meet the demand?—No; there are constant importations of foreign hops, and I know that there are many more coming.

869. *Chairman.*] Have you been up several times with deputations in favour of a postponement or remission of the hop duty?—Yes, I have been up on several occasions.

870. Has there not been constant distress among the hop growers?—Yes, ever since the year 1819.

871. Have you had communications with several of the different Chancellors of the Exchequer?—Yes, I have seen several.

F. Webster, Esq.

15 June 1857.

872. Has any one of them ever attempted to justify the present tax?—No; the only person who has attempted to justify it is the present Chancellor of the Exchequer.

873. Upon what ground did he attempt to justify it?—Upon the ground that it is an indirect tax upon beer; and the beer has always been considered a legitimate subject of taxation.

874. If it is a tax upon beer, would it not fall equally upon the beer drinkers, if you took the tax off the hops, and added it to the amount of tax upon malt?—No doubt.

875. Mr. *Knight.*] Do you think a tax on malt fairer than a tax upon hops?—Yes, I do, because malt is a manufactured article.

876. Do you think that the drying which it undergoes, at a cost of 3*l.* an acre, does not render it a manufactured article?—I do not consider that it is a manufactured article; it does not undergo any change. The drying merely draws off the moisture.

877. Mr. *John Locke.*] Does not it undergo an expensive process?—Yes; but you could scarcely call it a manufacture; it receives no new properties that it had not before.

878. *Chairman.*] Is not there this difference between malt and hops, that the producer of hops cannot control the supply?—Just so. The hop grower cannot limit the crop of hops; it is out of his power.

879. Does not the maltster malt as much as is required for his wants?—Yes.

880. Is barley so uncertain a crop as hops?—No.

881. Cannot barley be used for other purposes besides malting purposes?—Yes.

882. Mr. *Knight.*] Is not the hop dried in the kiln in almost a similar manner to the malt?—Yes; but it changes its nature altogether. The moisture in the barley produces such a change that it is a different thing altogether.

883. Mr. *John Locke.*] That is to say, you put a duty upon malt because malt changes its nature, although a manufacturing process goes on with respect to both?—Yes, if you call drying a manufacturing process. It is the same as drying hay; it is of no use until it is dried.

884. You do not dry hay by the fire?—No.

885. And you have not to build an oast-house for the purpose?—No.

886. *Chairman.*] Have you not an extraordinary tithe upon hops of 16*s.* per cwt.?—Yes, upon the average, it is as much as that.

887. Can you tell the Committee what is the highest and the lowest amount which you have known it to attain?—I think the highest that I have known it at is 18*s.*, and the lowest 14*s.*, in extraordinary cases. It is much higher in some parts of the country than in others.

888. Mr. *Brand.*] How is the extraordinary tithe assessed?—I suppose it is arrived at much in the same way as the ordinary tithe, by the produce for a certain number of years.

889. Sir *John Shelley.*] Was not it done at the time of the Tithe Commutation Act?—Yes.

890. Mr. *Brand.*] Why is one acre charged at 14*s.* and another at 18*s.*?—I suppose they took it, in a great measure, upon the value of the crops grown in the different parishes.

891. Has it anything to do with the opinion upon the value itself?—Of course; it was fixed at the time according to what was considered to be the value under all the circumstances.

892. Mr. *Brand.*] Do you know, what is the amount of the tithe in Mid and East Kent?—I believe it is considerably higher than that in Sussex, but I do not know.

893. Are we to assume that land upon which the extraordinary tithe of 18*s.* is paid is more valuable than that upon which 14*s.* is paid?—Yes, I believe so.

894. Do you apprehend that the extraordinary tithe is in proportion to the value of the land upon which it is levied?—I am not prepared to say that it is so in every instance, but that is my impression.

895. *Chairman.*] Is it not supposed to be so?—I believe it is so.

896. Mr. *Wykeham Martin.*] Did not many tithe-owners, in making the commutation, think it to their interest to put a low tithe, because the farmers might otherwise not have grown hops in the parish?—They might have done so.

897. Sir *John Shelley.*] Is not it the fact that with regard to these valuations there

Mr. *F. Webster*

15 June 1857

there was no uniform system adopted?—No; there is no fixed rule to guide you.

898. Mr. *Wykeham Martin.*] It seems, from the statement you made at the beginning of your examination, that the portion of a farm which is cultivated with hops has not, from that circumstance, obtained a higher rent than the remainder of the farm; is that the case?—It depends a good deal upon circumstances: in our district it is so.

899. You have stated that the rent in some lands was 10 *s.* an acre, and in some it amounted to 25 *s.* an acre?—Yes.

900. Do I rightly understand that these prices of rent relate to the land without reference to its cultivation, whether it has been kept for arable purposes or not?—In our district, I should say that we do not consider ours quite a hop district; that would be the case no doubt in other parts of the country, where they have a large portion of hop ground. It commands a much higher rent.

Tilden Smith, Esq., called in; and Examined.

T. Smith, Esq.

901. *Chairman.*] YOU are a Banker, I believe?—Yes, I belong to the Hastings Bank; I am one of the firm.

902. You are in the neighbourhood of a large hop-growing district?—Yes.

903. Are not you a hop grower yourself also?—Yes, I am.

904. Are you practically acquainted with the growth of hops?—I have been a hop grower for 35 years.

905. Can you speak as to the uncertainty of the cultivation of hops?—Yes, I can speak of that, because it shows itself perhaps more to me than to many persons; we find more at that time than at any other, owing to the uncertainty of crop.

906. In your capacity as a banker, can you speak to that?—Yes.

907. Is the duty generally regularly paid when it comes?—It depends upon circumstances; in some years, of course, it is not paid without much reluctance.

908. Have not there been numerous postponements of the payment?—Yes; I should beg to say that I have not taken an active part in the bank; I have merely heard it from consultations.

909. Do not you know whether numerous applications are made, and whether there is a great call for money about that time?—I can say that; but I think the factors can give you more information than I can upon that point.

910. Do not you, as a banker, know that you have very numerous applications for accommodation about that time?—Yes, many.

911. And that, in some years, the applications are very numerous?—Certainly.

912. Can you name any year in which they were very numerous?—Yes; I can go back to 1848, when the crop was the worst that ever I knew.

913. Can you give the name of any other year?—I could go back much further; to the year of 1822.

914. Were those two years which you have named, years of large crops?—They were.

915. Was the distress greater in those years?—1822 was a year of the greatest distress that I have ever known.

916. What was the amount of the duty in that year?—I think it was about 240,000 *l.*; 1848 was nearly as bad.

917. Sir *John Shelley.*] What was the duty paid in 1848?—About 212,000 *l.*

918. Were there two large crops together at that time?—Yes.

919. *Chairman.*] Was not 1849 a year of considerable distress?—It was in many parts; it was a partial blight; there was a great deal of distress in that year.

920. Was there a blight in the districts which you are acquainted with in that year?—Yes; I grew about 4 cwt. that year an acre; and my neighbour grew as much.

921. Had there not been a succession of years of large crops before that?—There had.

922. So that the distress grew to a climax in that year?—It did.

T. Smith, Esq.

15 June 1857.

923. Had you very numerous applications that year for accommodation?—Very many.

924. Were there a great number of failures in the hop crops in that year?—Many.

925. What was the effect of that upon the hop-planters as to the poor rates?—We have witnessed it more again this year than we may have done for the last few years. That arises from the large crops there have been in the last two years; the poor rates have increased for the last two years to a considerable extent; the hands have been unemployed in consequence of the farmers not having sufficient capital to pay labourers.

926. They are obliged to shorten the labour?—Yes; I have had an opportunity of knowing that from being one of the guardians of the Battle Union.

927. As a banker, do not you know also the effect it produces upon the union?—I do.

928. Where there is distress in an hop-growing district, is not it a very general distress, that extends to a great number of labourers?—It is.

929. Must there not be a great diminution in the consumption of articles in these years?—There must be a diminution; but if they fall on the union, if they are not employed, they consume something there.

930. Of course they do not consume to the same extent as if they were fully employed and fully paid?—Certainly not.

931. Will not the diminution be upon such articles as are articles of luxury among the poorer classes, such as tea, sugar, and beer?—Yes.

932. Would not that affect the Excise?—Certainly it would affect them as far as the consumption of beer goes.

933. Would it not affect the revenue as regards tea and sugar?—Decidedly.

934. So that, though the Government may enforce the payment of hop duty, may they not lose it in another direction?—They would leave it unquestionably.

935. Mr. *Knight.*] Are you aware that there has been a large rise in the poor rates in the last two years all over England?—I am.

936. Sir *John Shelley.*] With regard to Government prosecutions, are you aware, in your district, of any year when the Government have been obliged to prosecute the hop growers for non-payment of duty?—No, I do not know that I am.

937. Have no individuals that you have happened to know been distrained upon?—Not lately; I cannot recal it to my mind; I have not.

938. Can you state that, generally speaking, although distressed, the hop grower has managed, by some means or other, to meet the duty when it became payable?—Yes, he has done so perhaps this last two years, but not from the produce that the duty has arisen from. It is the high price of his other crops that has enabled him to pay the duty for the last two years.

939. Can you inform the Committee whether there are not more applications to you as a banker for temporary accommodation from the hop growers than from the farmers generally?—Decidedly.

940. Do I rightly understand you to say, that the applications are more numerous in the years of large crop than in the years of average crop?—Yes; we never have any in a short crop year.

941. In short crop years, you never found further time given or more accommodation granted for this hop duty?—We have not.

942. On the occasions of large crops, do you find that they come to you for accommodation to meet the duty?—I do.

943. Would not that lead you to think that the hop grower, upon the average, does not sell his crop to meet the duty, but that he prefers being obliged to send it to the hands of the factors, to lie there while he is borrowing money of you as a banker, in order to retain the hops for a chance of a rise of price hereafter?—In instances of that sort, I think they deal more with the factors; it is more when they keep the hops at home that they come to us.

944. Do they borrow occasionally of the factors?—Yes, when they send the hops to them.

945. Does not that practically make the article of hops a sort of speculation upon the part of the grower; does not he speculate upon a higher price, and therefore borrow money, in the hopes that a higher price will follow, to meet the demands of Government?—I do not know that you can call it a speculation, because

because the planter will sell when prices are remunerative if he can; but if not, he sells what he can to raise capital to pay the duty.

946. If the prices are what he considers unremunerative, and he prefers borrowing money either of the banker or the factor, and taking his chance of a rise of price by holding his hops over, are not the expenses unnecessarily increased, by holding over the hops throughout the winter?—It is not very expensive to warehouse; it is 1 *d.* a week a pocket and insurance.

947. Is there not a certain time, after which the factor makes a large deduction as to weight?—There is.

948. Will you kindly state when that is?—It would be the 1st of January in the following year.

949. After the 1st of January, therefore, it follows that 2 lbs. is the deduction of a large amount of weight, added to that previous to the 1st of January?—I think it is 2 lbs. a pocket; I am not quite certain of that; it is what they call a hop deduction.

950. Mr. *Bass.*] Was it not before the 1st of January?—It depends upon the weight.

951. I understood Sir John Shelley to ask you whether there was not a larger deduction of weight than before, and you said it was 2 lbs. a pocket after Christmas; now I ask you what it is before Christmas?—I think it is 2 lbs.; that is the difference of weight to the weight of the Excise.

952. Sir *John Shelley.*] Do not you conceive that there have been occasionally sales of hops by the Excise weight?—Frequently.

953. In that case, does not the seller get a return according to the amount actually found in the bag?—Yes.

954. After the 1st of January, it is not the practice to sell by the Excise weight, but the factor returns the weight with his 2 lbs. deduction?—Yes, that is the practice in the Borough. If you sell them in the country, of course you sell them as before.

955. Mr. *Bass.*] Is the Excise weight less than the actual weight?—No.

956. Do they weigh close?—They weigh close. I am speaking as to the weight in the country of hops; they usually weigh by the pound weight.

957. Sir *John Shelley.*] Can you state that the weighing of hops, within the last few years, has been much more exact on the part of the Excise than it was previously?—Yes, I can say so without contradiction.

958. Mr. *Bass.*] You said that the hop growers suffer from the expense of holding over their hops; did I rightly understand you to say that they hold a large portion of hops of the year?—Yes, they do; some of them. I do not mean to say the whole do.

959. The last gentleman that gave evidence here was kind enough to tell us that he thought upon the average two-thirds of the hops are sold by the grower by Christmas; does that concur with your experience?—I do not know that it does.

960. Are there more kept back in some years than in other years?—Yes; because the price is lower.

961. Do you suppose that the farmers ever hold half their crop till Christmas?—Yes.

962. I believe we have been told that the cost of the labour upon hops is 12 *l.* an acre; is that your opinion?—I believe it is more.

963. What do you think it is?—I think it is 15 *l.*

964. How much do you pay a week to your labourers?—Twelve shillings a week to what we call our daily labourers; but the pay upon hop grounds depends upon the labour that is done.

965. So that if a labourer were fully employed upon hops, it would take one labourer to two acres of hops, according to your calculation; is not that so?—Yes, it would take nearly that.

966. Would one man manage more than two acres?—Yes, he would manage more than that. I have not made a calculation of it; it strikes me it is more than that.

967. Do you know the number of labourers that are employed in the county of Sussex?—No; I do not.

968. Suppose you take 12 *l.* an acre, and two acres and a half to a labourer, you get 4,000 labourers in the county of Sussex employed in the growth of

T. Smith, Esq.

15 June 1857.

hops; is not that about it?—I do not know that I can speak to that. It takes three-fourth of the labourers in the parish, if it is a hop parish.

969. How many acres are there in the county of Sussex?—I cannot tell you that.

970. Are there 11,000 acres in hops?—Yes.

971. Supposing that there are 50,000 acres in the county, would not that give you one acre in five in hops?—Yes, that would be it; it varies very much.

972. Sir *Edward Dering*.] When you speak of 15*l*. an acre, do you include picking?—No.

973. Mr. *Knight*.] Is hop growing not a profitable occupation in your neighbourhood?—I should say not.

974. How comes it that you have not diminished the hop grounds; there are this year nearly 12,000 acres, and 12,000 has been the extent for some years; have you continued to grow hops for many years at a loss?—I cannot say that I have grown them at a loss; I do not think the profit has been anything, but I may say that there has not been a loss.

975. Do you know any growers of hops who have made fortunes by growing hops in the neighbourhood of Rye?—I have known people make money, but those who do it must be in the neighbourhood of Rye; there are the largest crops there.

976. You do not think, upon the whole, that it has been a profitable occupation?—I do not think that it has.

977. *Chairman*.] Is not hop-growing a very expensive business, and a very precarious business?—Very much so indeed.

978. Does not the duty aggravate the risk of it?—Very much.

979. Are there great prizes if a man is successful?—Yes.

980. He runs the risk of winning or losing a great deal?—Yes, but still you will find that the growers who do that will be men of some capital; the hop business cannot be carried on without capital; you must have capital to begin with.

981. With reference to the question as to making fortunes, are there not some men who are very successful?—There are some more than others.

982. Every now and then you meet with a great success?—There are some parts of the county of Sussex not so liable to blight as ours are.

983. Does not it take considerable expense to form a hop-garden?—Yes, it does.

984. Are they not some years before they bear?—Two years, at least.

985. Is there not a great deal of capital laid out in building oast-houses?—A great deal.

986. Do you think that when a man lays out capital in business he must go on?—Yes; but the landlord does that, and he lets his land.

987. Would not that lead to the cultivation of hops being carried on, though it has not been a profitable business?—Yes; there is often an extraordinary rent laid on, in consequence of the expense laid out upon the ground.

988. Is not the fact of so much capital being invested in hop plantations, and in the buildings necessary to carry the plantations on, the reason why the business of hop-growing continues to be carried on in that district?—Yes.

989. You said it was a precarious business?—It is so.

990. And a man must be prepared to incur great risk?—Yes; he must be prepared to keep his hops, or to sell at a low price.

991. When a man loses for two or three years, would he not go on in the hopes of making up his losses another year?—He would.

992. Are not those reasons sufficient to account why the growing of hops has continued in Sussex?—Yes.

993. Mr. *Knight*.] If barley and wheat were not profitable crops in Sussex, would not they give them up?—I believe so.

994. Is not it rather surprising that they continue to grow hops at a loss?—They go on in the hope of reimbursing themselves.

995. You have grown them for 25 years?—I have.

996. About what acreage?—About 70 acres.

997. May I ask you why you have gone on growing them for so long a period as that, when you were growing them at a loss?—Perhaps my answer to that would be different to that of a good many in the parish where I reside; where there

there is a poor population. I consider that every four acres of hops that is grubbed up throws an able-bodied man out of employment.

998. Mr. *Beresford Hope.*] Would not that be still more the case if you consider the wood land; if you grubbed up a district, would not the value of the wood land be destroyed, and all the labour they employed in splitting, binding, and so on, be greatly deteriorated?—Undoubtedly it would.

999. Mr. *Knight.*] Have you grown these 70 acres of hops rather in a charitable point of view, rather than with the hope of making money by it?—I looked to make money, but I should consider these facts before I thought of lessening my plantation.

1000. Mr. *Locke.*] You do not always grow at a loss?—No, perhaps not; I grow, perhaps, superior hops to a good many; I grow the golding hop.

1001. Mr. *Bass.*] You are quite sure that hop-growing is not the most profitable part of a farmer's business?—No, it is not.

1002. May I ask you, from the great amount of your experience, whether farming, taken as a whole, has not been continued under rather unprofitable circumstances?—Yes, if you take the average of years; but I should say for the last 12 years it has not been unprofitable at all.

1003. If you take from 1846 to 1852, how would it be?—I should say that all other produce has paid much better than hops; I am sure of that.

1004. Hop-growing, to be made a profitable pursuit, and requiring a great deal of capital, what would be the result if a hop grower were to carry on the cultivation of the remaining part of his farm, and give up hop-growing?—We should produce more corn.

1005. Would the result be more profitable?—That I cannot tell.

1006. Mr. *Beresford Hope.*] Having regard to the woodland and the system of planting in the country?—It would; it would alter things very much; but I do not think that that plantation would be lessened.

1007. Mr. *Bass.*] You spoke of 1822 as having been the worst hop year, was that entirely in consequence of the large produce of hops, or was not it to be attributed to the alteration of our money system?—Decidedly so; partly.

1008. *Chairman.*] In answer to a question put to you by an honourable Member, I did not understand you to say that the business of hop-growing throughout the whole country was an unprofitable business; is that your opinion?—No, I did not say that.

1009. I understood you to say that there had been great gains and great losses?—On the whole.

1010. You thought that on the whole the losses were so numerous, that, generally speaking, it might be said not to be a profitable business; was not that the effect of your answer?—Yes, I believe I answered to that effect.

1011. With respect to barley and wheat, are barley or wheat equally precarious crops with hops?—No.

1012. Could you not very soon ascertain whether land was suited for growing barley, or not?—Ours is not a barley-growing district at all.

1013. Is there any duty upon barley or wheat?—No.

1014. There is upon hops?—Yes.

1015. Sir *John Shelley.*] With regard to the losses sustained by hop growers, are you of opinion that those losses are increased owing to the hop duty, and the necessity which the hop grower is constantly under of borrowing money, as we have heard it stated, to meet the duty at times when there is an enormous crop and the price is low?—There is no question about it.

1016. And therefore, in your opinion, if the hop grower were free to grow his hops without any duty upon them, they would be more profitable in respect, at any rate, to that part of it for which he is obliged to borrow money to meet the duty?—Certainly.

1017. Mr. *Hanbury.*] Do not you think the foreign hops would then compete with the English, if the Customs duty and the Excise duty were taken off, and that it would tend to bring down the price of English hops?—I should say that hops are so different an article from anything else; it is tender, and liable to injury in the sending, and it is a perishable article from year to year; and I think the foreigner would not have a larger plantation after the duty was repealed here, to send the hops into this country.

T. Smith, Esq.

15 June 1857.

1018. Mr. *Ball.*] Are you of opinion that it would be beneficial for the home grower if the foreign duty and the English duty were both abrogated?—I am. That has been my opinion for the last 20 years.

1019. Sir *John Shelley.*] Whatever may be the cost of hop cultivation abroad, as compared with the cost of production in this country, is not the hop itself a perishable article?—It is.

1020. In your opinion, would the hop deteriorate after the first year?—Yes, very much.

1021. Have you any reason to suppose that the foreign hop which is brought into this country does not equally deteriorate with the English hop?—I think it does more; it is not manufactured so well.

1022. Do you think it is a speculation that anybody would be likely to go into to send hops which will not keep beyond a year into this country?—I should say not.

1023. Mr. *Knight.*] Before you formed the opinion that free trade in hops would be good for the English grower, did you enter into any statistics as to the price at which hops could be produced on the Continent?—I have spoken a good deal with foreigners and other parties upon that point.

1024. What is the result of your inquiries?—As far as America is concerned, I find that hops imported from America here do sell under 5 *l.* a cwt.

1025. If hops can be bought at Boston at 38 *s.* or 40 *s.* a cwt., cannot they generally be sold here at much under that sum?—They can.

1026. Now we will go to Belgium. In Belgium they have sold for 14 years past at an average of 32 *s.* a cwt.; they can be delivered in London at 40 *s.* Supposing that to be the case, do you think it would be possible that Sussex hops could compete with them?—I feel it impossible to say; but I take it that there will be a large importation for the purpose of supplying this country with hops; it is a very inferior article; the factors will explain that better than I can; I have seen a great many of them. I think the foreign hops are not of a quality that can compete with us.

1027. Suppose that foreign hops could be imported at 40 *s.* from the continent, must not that have the effect of shutting up the Sussex hop gardens?—No, I do not see that.

1028. Do you think that Sussex could compete with foreign hops at 40 *s.* a cwt.?—I think they may sell the hops at 3 *l.* a cwt. with the duty.

1029. But not at 2 *l.*?—Not at 2 *l.*

1030. Mr. *W. Martin.*] Have you seen the Belgian hops?—Yes, I have seen a great many of them.

1031. Do you think, looking to the quality of the Belgian hops, that the Sussex hops of the same quality will be sold for 40 *s.*?—I should say if the foreign hops fetch 40 *s.*, the Sussex hops would fetch 50 *s.*

1032. If there were any Sussex hops, that would be of the same quality as those Belgian hops, do you think they would fetch more than 40 *s.* in our market?—Yes, I think they would.

1033. *Chairman.*] Do I understand you to say, that the Belgian hops have been sold at 40 *s.* in London?—I have not heard of it.

1034. Sir *John Shelley.*] Supposing that to be so, that these Belgian hops have been sold at 40 *s.*, does it strike you that, supposing our market were opened to them free, and an increased demand arose in consequence, it is just possible that the price might rise upon the other side of the water?—I do not see why it should not.

1035. Mr, *Knight.*] Would not the effect of that be to put so much English money into the pockets of the foreigners?—It would in that case.

1036. Sir *John Shelley.*] Is it true that foreign hops are inferior to English in the proportion of 40 *s.* to 50 *s.*?—Yes; I do not go upon my own opinion, because I have other people's opinion as well as my own upon that fact. I have seen them and have compared them.

1037. Do you say that if Belgian hops were making 40 *s.*, ours would be worth 50 *s.*?—Yes.

1038. Does that apply to Belgian hops especially, or foreign hops generally?—I believe the Belgian hops are much inferior to any other foreign hops.

1039. Are the American hops inferior to ours?—Yes, in speaking of them there is something about the American hops that I have looked at that I do not

not like. I have heard that it is from the soil there is a bad odour about them, whether it is in the curing of them or from the soil I do not know.

1040. Are not some foreign hops very much esteemed?—Bavarian hops, of course, are good hops.

1041. Do you think that, as a whole, foreign hops are inferior to English?—I do not know. I cannot answer that question. The Bavarian hops are realising 7 *l.* a cwt. at the present time.

1042. Sir *John Shelley.*] The person who proposes to buy a sample of hops is very careful as to the smell, is not he?—Certainly.

1043. Is it not probable that the high price of the English hops are a good deal dependent upon their particular smell?—Yes.

1044. Is not it quite possible that an article shipped from America may get heated, or some accident may happen to it during its transit, which would be at any rate against the foreigner and in favour of the home grower, even under the system of free trade?—Yes, that might be so.

1045. Sir *Edward Dering.*] Have you any knowledge upon the subject?—No.

1046. Mr. *Locke.*] Are you aware of the prices which Belgian hops have been fetching in London?—I have not heard lately.

1047. Do you know the prices within the last three or four years?—Yes.

1048. Has not some portion of them fetched very high prices, much better prices, in fact, than the Sussex hops?—I have not heard of it.

1049. You do not know whether that be so or not?—I cannot say. I have no reason to doubt it, but I never heard of it before.

1050. Do you know that some portion of the Belgian hops are better in quality even than Sussex hops?—I never saw them.

1051. Mr. *Knight.*] Suppose the duty of 2 *d.* a lb. were taken off, do you think that the amount of benefit caused by that change would go into the pocket of the grower and dealer in hops, or the consumer?—I think it would go into the pocket of the grower a great deal.

1052. *Chairman.*] Do you think that the grower of the hops pays the duty?—No doubt he does.

1053. Mr. *Knight.*] Do not you think that he receives the duty back from the public when he sells the hops?—No.

1054. Sir *John Shelley.*] With regard to the accommodation given to hop-growers, do you have a deed or a lien upon the hops themselves as a security, or is it a personal security which the grower gives to the banker?—I do not know that I am prepared to answer that question.

1055. I presume that it would not be at a low rate of interest?—Not just now, I dare say.

1056. Mr. *Knight.*] Does not the farmer frequently go to the banker as to other crops as well as hops?—It is a question that I do not feel at liberty to answer.

1057. *Chairman.*] Hops being the most expensive and the most precarious crop, it would naturally happen oftener with regard to hops than to crops of any other kind?—Yes.

1058. What does the duty amount to on the value of the crop of hops, per acre, in proportion to the value of the crop?—I have known it 50 per cent.

1059. What year was that in?—1848.

1060. At what were hops selling then?—From 35 *s.* up to 47 *s.* or 48 *s.*, a great many of them.

1061. Have Sussex hops sold for the lowest price; are they not the most common kind of hop?—Yes, they fetch the lowest price in the market.

1062. Do not you grow larger crops, per acre, than the finer kind of Kentish hops?—Yes; some parts of Kent average nearly the same. I think the Rochester collection are within about 1 cwt. of Sussex.

1063. I am speaking of the best; they fetch the highest price?—Yes, those of Mid-Kent and East Kent do.

1064. Is not the duty paid in proportion to the quantity?—Exactly.

1065. It is a duty upon quantity, not upon value?—Yes, it is paid upon the cwt.

1066. Will you look at that calculation and tell the Committee whether you think that a correct calculation (*the Memorial of the hop planters of the county of Sussex to the Treasury of January* 1857 *being shown to the Witness*)?—It is as follows:

T. Smith, Esq.

15 June 1857.

follows: In Canterbury, in 1847, the duty was 22 per cent. upon the value of the crop; Rochester, 29 per cent.; Sussex, 35 per cent. In 1848, in Canterbury, it was 26 per cent.; in Rochester, 34 per cent.; and in Sussex, 46 per cent. In 1849, it was 10 per cent. upon Canterbury, 11 per cent. upon Rochester, and 16 per cent. upon Sussex. In 1850, 16 per cent. in Canterbury, 24 per cent. in Rochester, and 38 per cent. in Sussex. The average of the four years is 19 per cent. in Canterbury, 24 ½ per cent. in Rochester, and 31 per cent. in Sussex. That is correct; I have seen it before.

1067. Does not that show that the incidence of the duty upon the Sussex grower is much heavier than upon the grower of the more favoured counties?—Decidedly it does.

1068. Does that calculation show the full effect of that?—Exactly so.

1069. That contrasts the difference between the Canterbury collection and Sussex?—Yes.

1070. Does not the Canterbury collection embrace not only the best land in Kent, but also some of the Weald of Kent?—It does.

1071. Do you know whether that is taken into account in the calculation?—No, I cannot speak to that.

1072. Have you any calculations by you by which you could show the contrast between the incidence of the duty upon the best land in Kent and upon the land in the Weald of Sussex; that is to say, upon the best land and upon the worst land that hops are grown upon?—No, I do not know that I have; but if you want about the average, you could tell the average that is grown from one part of the county to the other.

1073. Mr. *W. Martin.*] Do you know upon what prices this calculation is based?—I have not got it here.

1074. Mr. *Knight.*] You have stated that you think that Sussex hops can be sold at a profit at 60 *s.* without the duty; are you aware what the average price during the last ten years has been; has it averaged more or less than 60 *s.*?—I should say decidedly they make something like 4 *l.*

1075. Sir *John Shelley.*] With regard to the time when the duty is payable, do you think that it would be advantageous or the reverse to the grower of hops if the time at which he would have to pay the duty upon the crop were brought nearer to the time when the hops go into the factors' hands?—No, I should think not.

1076. Do you think that the present system of long tick is favourable to the grower?—Yes, I do.

1077. Upon what do you base that opinion?—Naturally, in the large crop years, it gives a person time to hold his hops on, which otherwise he would be obliged to force upon the market.

1078. Does not the evidence that you have laid before the Committee show that he is enabled to borrow money to meet the duty, rather than force the hops upon the market?—Certainly.

1079. Mr. *Knight.*] Cannot he retain the hops until May before he has to borrow any money?—Yes.

1080. The first instalment is in May?—Yes.

1081. Sir *John Shelley.*] Is it not the fact, that in very rare instances the grower of the hops has not warehouses sufficient to enable him to keep his hops dry, therefore the hops are obliged generally to be sent to a factor in London, or to proper warehouses, to prevent deterioration of the hops during the winter?—Yes; they cannot keep them in the country beyond the month of November; after Christmas, is as long as he could ever possibly keep them.

1082. With reference to all other agricultural produce, may not wheat, barley, and oats, and all those be kept by the farmers, provided their insurance secures them from any risk?—Mostly so.

1083. But in the case of hops, from the peculiarity of the production itself, he is obliged to forward them to warehouses, and when they go out of his hands, the expenses begin?—Yes, they get what is called crusted about the month of November; the air gets to them.

1084. Sir *Edward Dering.*] In the memorial to which your attention has been called you have given the prices of the years 1847, 1848, 1849, and 1850; what document do you quote them from?—They were taken from different documents at the time this memorial was drawn up.

1085. Was

1085. Was this memorial presented to the Chancellor of the Exchequer?—It was.

1086. Did you test its figures yourself?—Yes; I was one of the Committee.

1087. Is not the duty paid upon the quantity of hops grown?—Yes.

1088. Does not the excess of the duty paid by Sussex over Rochester and Canterbury show that a very much greater quantity was grown in Sussex than was grown in Kent?—It did in those years.

1089. Are you well acquainted with the expenses of the cultivation of hops in Kent as compared with Sussex?—I should say it is very little less.

1090. Do you know practically the expenses of cultivating the hop land in Kent?—No, I have not land in Kent, but I know many hop planters in the county.

1091. Do you think it would be the same in both counties?—I think there is very little difference in the expense of cultivation.

1092. Mr. *Martin*.] Do you speak of Mid-Kent or of the Weald of Kent?—I was speaking of Mid-Kent, in the neighbourhood of Maidstone.

1093. Sir *John Shelley*.] With reference to the rent of your land upon which you grow hops, what would be the rent of this part under cultivation?—I should say about 15*s*. an acre.

1094. Are you acquainted with the rent of lands in the Weald of Kent?—I am with some of them.

1095. What is the average of the rental in the Weald of Kent?—From 20*s*. to 25*s*.

1096. Can you state the rental of lands in the more favoured districts of Kent?—No, I do not think I can.

1097. Is it higher than Mid-Kent?—I have heard of various prices; I have heard it is as high as 3*l*. an acre, but I cannot speak as to the fact.

1098. Have you heard it stated to be higher than that?—It is higher, but I cannot take upon myself to say how much.

1099. Do you think that, if a fixed duty were imposed per acre, it would be just that land which only paid a rent of 12*s*., 13*s*., or 14*s*. per acre, and land which paid 2*l*. in rent, and perhaps 3*l*., should have the same fixed duty put upon them?—I should say that it would throw all those lands out of cultivation.

1100. Would your opinion be, that a fixed duty per acre would be so advantageous to the high-priced quality of land, that it would necessarily throw the inferior soils out of competition with those lands?—Yes, decidedly, I should say it would. I should say that the hop plantations in Sussex would be thrown out of cultivation.

1101. With regard to what you stated as to the Battle Union, of which you are a guardian, and of the effect of this question upon the poor rates in full years, when labour was thrown out, and the demand upon the poor rates was consequently increased, do you think that if there were a fixed duty of the 3*l*. per acre, which would throw the poor lands out of cultivation, the necessary result might be a large increase of poor rates in the poorer districts?—I have no question about it, and to a very great extent.

1102. Sir *Edward Dering*.] Is not it precisely upon what are called the inferior lands in Sussex that we get the great excess of produce over Kent?—I am not aware of it.

1103. By the papers you have put in here, it appears that the duty levied upon Sussex has been three per cent, as compared with 24 per cent levied upon Rochester and 19 per cent. upon Canterbury?—Yes.

1104. Is not that per centage upon what you call the poorer descriptions of land?—Yes; I suppose it is for the whole of the county of Sussex.

1105. Is not it, therefore, upon what you call the inferior soil of Sussex that you grow the large bulk of the crop?—I cannot say. My answer now applies to poor lands; the poor lands we consider to produce something like an average of eight and 10 cwt. an acre; the better land 15 cwt., and so on.

1106. Do you consider that putting an equal duty upon those lands with the lands in Kent, would throw the better lands in Sussex, in which you have a large amount of crop, out of cultivation?—No, I think it would increase it very much.

1107. Mr. *Ball*.] Did I understand you correctly to say just now that Sussex hops sold at 63*s*. without the duty, would be remunerative to the grower?—Yes, in the cropping-years they would.

T. Smith, Esq.

15 June 1857.

1108. And that for the last 10 years they have made an average of 63 *s.*?—Yes, they have.

1109. How do you reconcile that with the answer which you previously gave when you said that hop-growing generally was not beneficial?—It has been in some respect; I do not say to any great extent.

1110. If hops can be produced at 63 *s.*, and they have averaged for the last 10 years 80 *s.*, as you say, it is a remunerative price, but you say further that hop-growing is not profitable; can you explain that discrepancy?—If we were relieved from the duty, I think it would happen a good deal more than it does now, because we are hindered from getting the hops to market in consequence of the Excise.

1111. You were asked whether, supposing there was a fixed duty put per acre upon land, it would not throw the inferior land out of cultivation; your opinion is that it would; if a fixed price were put upon land per acre, would not that fixed price be governed by the value of the land; would it be imposed on the rent paid?—No; I understood that it was to be a fixed price upon good land as well as bad.

1112. Mr. *Martin.*] There is another proposal, namely, to take off the war duty; has that been subjected to your consideration at all?—Clearly; I have had them all under consideration.

1113. Should you prefer, as a hop grower, to have the duty levied upon the present system, or to have an acreage duty?—I should prefer the penny a pound decidedly.

1114. Has it ever occurred to you to consider the advantage that the hop growers gain in marketing their commodities, from knowing so accurately as they do the statistics of the trade, and the quantity grown?—No, I do not know but that that would be better for the trade; it would be got at near enough to judge.

1115. Are not you aware that the extensive dealers in corn, for a great many years past, have been in the habit of sending travellers round the country to inspect the hops, before the duty, so as to gain a knowledge of the probable produce?—I am not aware of that.

1116. Supposing that system to be pursued, is not that a system that the grower cannot pursue?—It is so.

1117. When two persons have to deal in a commodity, and one of them possesses a very accurate knowledge upon all those points, and the other posseses no knowledge at all, do not you think that the one is more favourably situated for dealing than the other?—It would be a much less expense to get at the quantity of the hops than the quantity of corn.

1118. Supposing the one got this knowledge, and the other did not, would there not be a considerable advantage to the person who had the knowledge rather than to the person who had it not?—I suppose the planters would get a knowledge before they got rid of their commodity.

1119. Mr. *Brand.*] With regard to the acreage duty, assuming the number of acres to be about 50,000, can you state what amount of acreage duty would be required to make up the present amount of duty?—According to my present information I could state it.

1120. Are you aware that the revenue received for the last 10 years upon hops has amounted to 350,000 *l.*?—Yes.

1121. At that rate would it not require 7 *l.* an acre to make it pay that revenue?—Between 6 *l.* and 7 *l.*

1122. Sir *John Shelley.*] You stated that a short time previous to the duty day many of the farmers are obliged to seek for accommodation from their bankers or their factors; are there not others who, instead of borrowing money, will sell off the produce of their farm and their stock in order to meet it?—It is frequently the case.

1123. Has it not been generally the opinion of those who have stock to sell, that it would be desirable to avoid sending it to those fairs which come just about the duty day?—Yes.

1124. Is not it generally considered that those fairs are almost sure to be heavy and dull fairs, in consequence of the hop grower having to meet the duty, and his being obliged to sell at whatever price he could get?—That always shows itself.

1125. Mr.

1125. Mr. *Knight.*] Does not that rather prove that many farmers pay their own duty without borrowing?—They do.

1126. To what amount do you suppose the borrowing goes on?—I cannot answer that question.

1127. As to 10 per cent. of the crop, has the hop planter to borrow?—I cannot answer that question.

1128. Sir *John Shelley.*] Can you state to the Committee from your experience, which has now extended over a great many years, whether the system of agriculture in hop growing districts, with reference to the breeding of cattle, has altered at all lately; whether more or less cattle are reared than were?—Much less.

1129. Do you attribute that, in any way, to the farmers at former times having had to sell off cattle to meet the duty?—When we were first enlightened with free trade, we thought we should have such ruinous prices (and no doubt the prices were low), that where seven or eight small farmers used to rear their half a dozen beasts every year, now there is no such thing; they gave it up at that time; the prices were very low for a year or two; therefore I consider that that is the way in which the stock has become so short.

1130. Do you attribute that more to the panic at the time of free trade than to the fact that of late years, particularly the last two years, when the hops have not been very remunerative, the farmers have been forced to sell other things to meet the duty day?—They have been, that is quite certain.

1131. Mr. *Knight.*] Have they broken up a great deal of grass land and altered their system of cultivation?—There has been more broken up within the last three or four years.

1132. *Chairman.*] You were asked a question about hop growing in Sussex being unprofitable; do you mean to say that the county lost, or that a great number of individuals lost?—I cannot tell you; they may lose at some farms and gain at others.

1133. Mr. *Brand.*] As a general rule, is it not the fact, that men with capital do well, and men without capital do badly?—Those men do best who have a large capital. I have the statement of two planters in the neighbourhood; one has in six years derived a benefit of 700 *l.*, and the other has lost 1,200 *l.* in hop-growing (they are in the same neighbourhood); the one was fortunate two or three years in growing a crop, the other's hops were blighted.

1134. *Chairman.*] Were they in the same number of years?—Very nearly.

1135. Mr. *Knight.*] Upon the average corn farm, does not it frequently happen that one man is ruined, and that the other gains a great deal of money?—That will frequently happen where they have competition.

1136. And it is the same with hops?—I think it is more so with hops than with anything else.

1137. *Chairman.*] Can you tell me what was the average price of Sussex hops in the year 1855?—I should say from about 35 *s.* to 70 *s.*; there have been a great many sold at 35 *s.* since.

1138. Mr. *Brand.*] Is not there a strong feeling in Sussex against the system of marking pockets by the Excise?—There has been.

1139. Mr. *Knight.*] Is not getting rid of that one of the objects of the Sussex people in asking that the duty should be taken off?—I should think not.

1140. Sir *Edward Dering.*] Would you consider it a great advantage to you if they were not obliged to be marked?—No; I do not see that you can pick your hops without putting some mark upon them, because in the case of false package the purchaser would not know who to fall back upon.

1141. *Chairman.*] If there were no Government regulations, would not the grower mark his own hops?—He would mark his own hops in a good parish.

1142. Sir *Edward Dering.*] Do you think a Sussex man would always mark his hops with the name of his parish?—I should mark my own hops as I do now.

1143. *Chairman.*] Do you see why hops should require the Government mark more than anything else?—Not more than a sack of grain.

1144. Sir *John Shelley.*] If a man sells a sack of wheat, does he mark his wheat wrongly?—No; I think that the purchaser should have some one to fall back upon in the case of false package, in order to re-imburse himself.

1145. Sir *Edward Dering.*] Is not it a great advantage to the merchant to know where the hops are grown?—Decidedly.

1146. Might it make a great difference whether the hops were grown in one place or in another?—Yes; the hops vary in different parts of Sussex and South Kent.

1147. Mr. *Brand.*] Do you think that hops can be bought by sample, as well as wheat and other things?—Yes; if the man knows his business.

1148. Can the different qualities of hops be ascertained with quite the same facility as wheat?—Perhaps not.

1149. Is not there greater practical difficulty in selecting hops, than in selecting a sack of wheat or barley?—Yes; there are different kinds of hops; the Golding hop is better than the others.

1150. In fact if a man is conversant with hops, it may be possible for him to do it, but he might be mistaken?—Yes, certainly; I think it would require a good judge to tell positively whether they are grown in the Weald of Kent or Sussex.

1151. *Chairman.*] And therefore persons not competent to know hops may be induced by the mark to buy some very bad Kentish hops instead of some very good Sussex hops?—Yes.

1152. Mr. *Martin.*] Are not the planters in some parts of Sussex more subject to blight than in others?—Yes.

1153. Is not there the same difference between one parish and another as far as concerns farming, as between Sussex and Kent?—I think it is very different.

1154. It differs according to the quality of the soil?—Yes, I think the poor lands produce the best quality of hops in Sussex.

1155. Would not those who are conversant with those circumstances in the Borough Market naturally look upon those from some parishes with more favour than upon those from other parishes?—Yes, and I think they do.

1156. Sir *John Shelley.*] With reference to hops, does not a great deal of the worth of hops afterwards depend upon the care and attention that is paid to them in drying and preparing for the market?—I have seen a great deal of that.

1157. Is not it the fact that in the same parishes, with only a hedge dividing them, there are instances in which the hops are well managed in the one case and so badly managed in the other as to be hardly saleable?—I have had instances of that.

1158. Would you think, therefore, that the name of the parish in which the hops were grown would be a sufficient safeguard as to their quality?—No.

1159. Must not the buyer depend upon his own judgment and ability rather than upon the stamp?—Yes, he should do so.

1160. Is it right that a man without brains should be guarded by the Government, and placed in as good a position as the man who knows what he is about?—No.

1161. Sir *Edward Dering.*] Still, would it not be important for you as a buyer, to know that the hops came from a good parish, and from a man who was known to be a good manager?—Yes, I should give the preference to his hops.

1162. Is it not, therefore, a great advantage to you to have the mark, supposing you know that A. B. of a certain parish was in the habit of sending good hops to market, and would you not rather favour his hops than those with a mark which was perfectly unknown to you?—I should.

1163. Mr. *Knight.*] Are you aware that there is an Excise regulation by which a person who puts bad hops and good hops into the same package is fined 20 *l.* a package?—I know that there is a penalty; but I do not know the amount of it.

1164. Must not that penalty be a great protection to the buyer, considering that if the quality of the hops were different in different places in the same package, it would be very difficult to sample a quantity of hops?—Yes.

1165. Therefore, must not that regulation of an Excise, by which the hops in the package must be either good or bad all through, certainly be a great protection to the public, which they would lose if the Excise laws were taken off?—Yes; if those hops are sold by sample, you would have a fair sample of the hops;

hops; if they are mixed in the package, he buys them according to the sample which is drawn from the package.

1166. Therefore, if the hops had been mixed in the package, would not he be cheated thereby?—It might be so.

1167. Would not he be exposed to being cheated?—Exactly.

1168. Mr. *Locke*.] Have you ever grown the Golding hop?—I have.

1169. In Sussex?—Yes.

1170. Might I ask you, whether the price which you obtained for those hops was not pretty nearly the same as you would have obtained if they had been grown in Kent?—I actually made 20 *s*. a hundredweight more of them than I did of my other hops.

1171. Do you know what the price of Kent hops was at the time when you sold yours?—No, I do not.

1172. You say that you got 20 *s*. more for those hops than you got for the other hops that you grew; do you know whether you did or did not get more for your Goldings than the Kent growers got for them?—I was told that, if I could put the Kent mark upon them, they would give me 40 *s*. a hundredweight more than they would for the others.

1173. Do I rightly understand you to say that there was a difference of 20 *s*. between the price of your hops and the price of those grown in Kent?—Yes.

1174. Do you consider that your hops were as good as the Kent hops?—I can lay them against many samples of Kent hops that I have seen. They are inferior, of course, to the best Kent hops.

1175. Would there be any difference in the actual hops, from the fact of one being grown in the soil of Kent and the other being grown in the soil of Sussex?—No, I think not.

1176. Is there not as much difference between hops grown in different soils as there is between cheese made in Cheshire and cheese made down in Surrey?—I do not mean to say that they cannot grow hops in some parts of Kent better than we can in Sussex.

1177. Is not it the fact that you cannot make Stilton cheese, except in a particular place?—Exactly.

1178. Can you grow real, proper Golding hops in any other place, except in the particular portions of Kent where they are grown?—I should say not so good.

1179. *Chairman*.] If there were a tax upon cheese, would it not be very unfair if the tax upon Stilton and the tax upon the lowest farmhouse cheese were the same?—Yes.

1180. And if it were heavier upon the poor cheese than upon the good, would it not be worse still?—Yes.

1181. Sir *John Shelley*.] With regard to the question of marking the pockets of hops, if a man is fortunate enough to live in a particular district, and if the hops which he grows are looked upon with favour in the market, do you think that it is necessary to have a compelling Act to make him mark his pockets, or that he would continue to do so, if he had the best sort of hops, although no Act obliged him to do so?—Yes, I think he would.

1182. Do not you think that if a merchant happened to be famous for his good claret, he would take care to put the marks of his name upon the corks of his wine, although there is no law to compel a man to put a mark upon his wine?—Just so.

1183. Do not you think that the grower who grew the best hops would still continue to mark his pockets?—Yes.

1184. And that the man who lives in the less-favoured districts would not be very anxious to put his name upon the hop pockets, and that therefore the opinion of the hop merchant upon the article would be, that there was some reason why he did not mark it?—Yes.

1185. Do you think that an Act of Parliament is necessary to enable a hop factor to know good hops from bad?—I think the purchaser ought to be protected; the hops come from so many different districts, that I think he should be protected by some mark.

1186. Do not you think that, practically, the man who grows the best quality of hops, and is in the most favoured district, will take care, when he gets his produce to market, that people shall know where it comes from?—Yes.

1187. Do you think that an Act of Parliament is required to oblige him to

T. Smith, Esq.

15 June 1857.

do so, or that he would do it for his own interest's sake?—I think he would do it for his own interest's sake.

1188. Do you think that it is necessary that the hop grower in the less favoured districts should be compelled also to mark?—I am speaking of false package; I am not speaking of the growth of hops, but I am speaking of false package, and slack dried hops; they are worth nothing after they have lain by for a few months.

1189. Do I rightly understand you to say that under the present system you constantly have false package and slack dried hops?—Yes.

1190. So that the effect of marking the package does not prevent, in some instances, false packing and slack drying?—No, but by marking the packing, the purchaser would know who to fall back upon in that case.

1191. Under the present system, when there is false packing, and slack drying, the buyer has the means of going back to the original producer for redress?—He has now.

1192. Will you be kind enough to state whether, in your knowledge and experience, there has been any instance of a grower being prosecuted for false packing or slack drying?—I do not know that there has; but I know that planters have been fetched up to the Borough by some of the factors, and they have had statements made to them that their hops had been slack dried.

1193. Have they ever been brought up for prosecution on that account?—I am not aware of any.

1194. Have there been instances of money being paid back to the factors?—I think so; I never experienced it myself, but there have been such cases; I have heard of them.

1195. But they are not within your knowledge?—They are not within my knowledge.

1196. Sir *Edward Dering.*] What do you call false package?—Sometimes the refuse hops, and some that have been sifted out, are put into the bottom of the package, or the top of the package, so as to avoid the middle of the package where the sample is drawn.

1197. You have said that there is no occasion for an Act of Parliament to compel the grower of good hops to put his mark upon the hops. Do not you think that it is necessary for the protection of the purchaser that the grower of the inferior hops should not be allowed to put a better mark than they ought to have, and thus delude the purchaser?—The grower would not be allowed to put any mark other than his own name.

1198. Mr. *Knight.*] Supposing that the Excise regulations about marking were abolished, do not you think that a large quantity of inferior hops might be sent to market marked with the best Kentish brands?—I should say not.

1199. Do you think that the hop planters are too conscientious a race to do that?—I think anybody would know better than that.

1200. Mr. *Locke.*] Do you think that anybody who came from an inferior place would put a mark on his hops if there were no restriction about it?—No, I think not.

1201. Sir *John Shelley.*] In the case of Stilton cheese, is there any law to protect the buyer?—I do not know of any.

1202. Did you ever hear of Sussex cheese being sold for Stilton cheese?—No, I never did.

1203. Sir *Edward Dering.*] Did not you say that there was much greater difficulty in detecting the quality of hops than any other article?—Yes, I think there is.

1204. Therefore the case put in the last question does not apply. You do not make cheese, I think, in Sussex?—Very little.

1205. Mr. *Knight.* With respect to cheese, I think you stated that if there were an equal duty per pound upon Stilton cheese and upon inferior cheese, it would not be a fair duty. But supposing that the one farm would produce so much more in quantity of the inferior cheese than the other does of Stilton cheese, might not the duty be in favour of the inferior cheese?—Yes.

1206. *Chairman.*] Would not it depend upon the prices?—Yes.

1207. Mr. *Knight.*] Does not the Sussex grower grow a great deal more than the Kent grower?—Not much. By the memorial that has already been referred to, it appears that there is not much difference.

1208. Mr. *W. Martin.*] Is not the calculation of that memorial made with reference to the value of the hops?—It is the duty.

1209. Is not it the per centage of the duty upon the value?—The duty is so much more per cent. upon the Sussex hops than upon the others, upon the value of the crop.

1210. *Chairman.*] Have you often been up with different deputations, to different Chancellors of the Exchequer, to ask for a postponement or remission of the duty?—Yes, I have.

1211. In the course of these deputations, have you elicited the different opinions of the different Chancellors of the Exchequer, with regard to the duty?—Yes, I have heard the opinion of Sir Charles Wood and of Lord Aberdeen.

1212. What was the effect of those opinions?—He said that the principle of the total abolition of the duty was right.

1213. Have you ever heard any Chancellor of the Exchequer express an opinion that the tax was a right tax?—No, certainly not.

Mr. *Henry Selmes*, called in; and Examined.

1214. *Chairman.*] YOU have been a Hop Grower all your life, have you not?—I have.

1215. Are you a grower of hops at the present time?—Yes, I am.

1216. And the district in which you have resided is a hop-growing district?—Exactly so.

1217. I believe your father was a great hop grower?—Yes.

1218. You have lived and have been brought up in a hop-growing district?—Yes, all my life.

1219. Have you taken great interest in it, and discussed the questions connected with the growth of hops?—Yes.

1220. Have you heard of the discussions which have been going on lately as to the desireableness of an acreage duty?—I have.

1221. Would you be good enough to state to the Committee your views upon that point?—I have advocated an acreage duty, because it was a scheme proposed by the late Mr. Hodges, which seemed to meet with a favourable acceptance from a large portion of the Kentish planters, as well as from the Sussex planters. I did not consider it altogether as the best scheme that could be proposed; but yet, under the circumstances of the case, I considered it to be the most acceptable.

1222. Mr. *Knight.*] Do you advocate it still?—I should advocate it still.

1223. Sir *John Shelley.*] You do not consider it the best scheme, but under all the circumstances, you advocate it; will you tell us what you consider to be the best scheme?—I consider the shortest scheme to be the repeal of what is called the "war duty," leaving the duty on hops as it was originally; I believe at 1 *d.* a pound.

1224. *Chairman.*] Leaving the Customs duty as it is?—Exactly so.

1225. Sir *Edward Dering.*] When you speak of an acreage duty will you tell us how much acreage duty you advocate?—The sum of 3 *l.* an acre was mentioned.

1226. To bring up the duty to its present amount; that is to say, to pay the same amount as has been the average for the last 10 years; are you aware what amount per acre would be required?—I am not exactly aware; the hop planters considered that it would be something like a repeal of the war duty; 3 *l.* an acre was considered a substitute for that reduction.

1227. Therefore, supposing an acreage duty of anything beyond 3 *l.* were imposed, would you consider that that scheme would be acceptable?—Not exactly so; I should infinitely prefer a higher duty per acre than 3 *l.* in substitution for the present duty.

1228. You are doubtless aware that the amount per acre that it would require to raise it to the present amount is about 6 *l.* 10 *s.*; are the Committee to understand that you would advocate 6 *l.* 10 *s.* per acre rather than have things remain as they are?—That is a subject that I have not much considered, because I never dreamt of such a thing being proposed.

1229. Mr. *Beresford Hope.*] Are we to understand that you would not accept 6 *l.* 10 *s.*

Mr. *H. Selmes.*

15 June 1857.

6 *l.* 10 *s.* per acre in preference to the present system?—If I was individually asked the question, I say that I would.

1230. Upon what ground do you prefer a reduction of the war duty to an acreage duty, which would be equal to the present duty when so reduced?—Because I think the reduction of the duty, leaving it at its original sum, would give unqualified satisfaction to all the planters.

1231. Would they, in that case, put up with the inconveniences to which they are exposed by the Excise?—Exactly so.

1232. Mr. *Knight.*] Do you consider the Excise regulations act injuriously to the hop planters?—I think they act injuriously, certainly.

1233. Then the shortest plan that you can propose would be to reduce the war duty, and leave the Excise regulations exactly as they are?—Exactly.

1234. Mr. *Beresford Hope.*] Do you view it as a measure which, as an individual, you think the best scheme?—No. If I understand the matter right, on account of the magnitude of the duty, I consider that a compromise might be effected among the hop planters.

1235. And you swallow what you consider the inconveniences of the Excise impost in order to bring that about?—Exactly so.

1236. Sir *John Shelley.*] In coming to that conclusion, does it enter into your imagination at all that any dread of foreign competition might arise?—Certainly.

1237. Has that anything to do with bringing you to your conclusion, that you would prefer an acreage duty of 6 *l.* 10 *s.* an acre, rather than have the duty repealed?—Yes.

1238. Did I rightly understand you to say that, speaking individually, you would prefer 6 *l.* 10 *s.* per acre to the present system?—Yes, to the present system.

1239. In coming to that conclusion, do you bear in your mind any dread lest by any alteration which may be made you should be subject to foreign competition?—I certainly have considered that.

1240. Does that confirm you in the opinion you have come to?—I have considered that there is a party for free trade, and I am aware of that; and therefore I should infinitely prefer paying 6 *l.* an acre, supposing they could put a perfect end to the free trade in hops.

1241. Would you prefer that to a reduction of the duty, provided there was protection at the same time?—No.

1242. In alluding to the duty, you mean a reduction of the Excise duty, leaving the Customs where it is?—Exactly so.

1243. And rather than have any reduction of the Customs duty, you would prefer either to leave the Excise duty where it is, or to have a 6 *l.* 10 *s.* acreage duty?—Yes.

1244. What makes you dread so much foreign competition, as a practical farmer?—I hold in my hand a paper which has been prepared by a number of hop factors, and I find that in the year 1856, 530 tons of foreign hops were imported into this country.

1245. What are the names of those factors?—Messrs. Selmes, Masters & Co.; and I find also that the average price of Sussex hops during that period, that is to say, during the months of September, October, November, and December, was 3 *l.* 3 *s.* per cwt., and therefore I take it for granted that if they could import hops at such a price, they would be likely to import more if they had no duty at all to pay.

1246. Do you know what was the average price at which those 530 tons sold;—No I have not got the particulars.

1247. Were they bonded?—Yes, and sold; and a larger quantity was imported.

1248. Sir *Edward Dering.*] Those were entered for consumption during the period that the Sussex hops were sold for 3 *l.* 3 *s.*?—Yes.

1249. Is it the fact that during those four months in which the Sussex hops averaged 3 *l.* 3 *s.*, 530 tons of foreign hops were entered for home consumption?—Not exactly so; those hops were imported during the year 1856, and during those months, September, October, November, and December, the average price of Sussex hops was 3 *l.* 3 *s.* per cwt.

1250. Sir *John Shelley.*] Can you state at what price they were sold?—I have no information at all.

1251. Are you acquainted with the foreign hops?—Not at all.

1252. Do

1252. Do you know the quality of them with regard to our own?—I believe the hops from Bavaria are superior to our own.

1253. Do you know what proportion of those 530 tons were Bavarian and what proportion were Belgian?—I do not.

1254. Mr. *Brand.*] Do you consider that if you had to pay an acreage duty of 6*l.* 10*s.* you could still compete with the foreign grower?—Perhaps that is rather a difficult question to answer. When I say I would prefer 6*l.* 10*s.*, in making that calculation I meant in reference to what I had just propounded, which is a state altogether of free trade in hops, and I would prefer it to the present Excise duty.

1255. Sir *John Shelley.*] Do you think, supposing we had an acreage duty of 6*l.* 10*s.* with the present importation of foreign hops, you would be able to compete with them?—I merely look at it in this light; we should have much less to pay than we have now.

1256. And in that respect you think an acreage duty of 6*l.* 10*s.* would be a benefit to you instead of the present system?—I should prefer it, as we should have less money to pay.

1257. *Chairman.*] What have you paid for duty upon the average per acre during the last 10 years?—I do not think I can tell sufficiently accurately for the Committee to depend upon, but it is something very much more than that.

1258. Mr. *Beresford Hope.*] Did I rightly understand you to state, that you had a preference for an acreage duty of 3*l.*, but that in order to unite the whole country with you, you could go for a reduction of the war duty; that you would prefer a high acreage duty to a high Excise duty, but that you would prefer a low Excise duty to a low acreage duty?—I would prefer a high acreage duty to tampering with the Customs duty.

1259. Mr. *Wykeham Martin.*] Then you would prefer the system of taking off the war duty to a low acreage duty?—Certainly.

1260. Sir *John Shelley.*] Can you give an opinion as to the comparative quality of foreign and Bavarian hops as compared with English?—No.

1261. The fact, as impressed upon your mind, is that whatever the quality of the hops, and whatever the price at which they were sold, whether to the profit of the grower or not, the fact of 530 tons having been imported when the Sussex hops were at 3*l.* 3*s.*, induces you to be afraid of any tampering with the Customs duty?—Yes.

1262. Would the producer benefit, or the consumer, by a reduction of the war duty?—I do not think the consumer would care much about it one way or the other; I do not think it is a consumers' question at all.

1263. Would not an abatement of the war duty go into the pocket of the producer?—Exactly so.

1264. Mr. *Knight.*] £. 6. 10*s.* being the average price per acre now paid, do not those who grow a large crop now pay a large amount of the duty, and those who grow a small crop but very little?—Exactly.

1265. So that it would not fall upon those who grow small crops so much as upon those who grow much larger crops?—No. I am not recommending anything such as 6*l.* 10*s.* an acre; I am merely saying that if the worst came to the worst, I would rather pay a high duty per acre, to having any interference with the foreign duty; I do not mean to say that the hop growers would agree to that.

1266. Do you think that the change would at all bear upon the hop grower?—There would be an objection raised to it on the part of those parties who grow the finest hops and the best hops; but, comparatively speaking, they bear very little of the duty. I suppose the superior quality of hops makes a high price per cwt., and therefore they do not feel the duty in the same way as those parties who grow an inferior description of hop; but, at the same time, even those parties would pay a much less sum per acre than the sum which they now have to pay; and there have been meetings in Kent for the 3*l.* per acre.

1267. Have not those who grow the inferior hops oftener had bad crops than the others?—I should say, comparatively speaking, it is the reverse.

1268. Sir *John Shelley.*] After all, the question of a large crop or a small crop all resolves itself into a debtor and creditor account; the produce, per acre, by the man who grows the smallest crop, makes a larger return per acre than

Mr. *H. Selmes.*

15 June 1857.

than that of the man who grows a large one; is not that the more profitable business of the two?—Generally speaking, the person who grows the smallest crop realises the greatest profit.

1269. So that the present duty is directly in favour of the man who grows the smallest crop, and against the largest return?—Exactly so.

1270. And it is against the man who grows the largest crop?—Yes.

1271. Mr. *Brand.*] Would it be an equitable arrangement that soils of various values should pay the same duty?—No; something that was seemingly more uniform than 3 *l.* per acre would be more acceptable. But at the same time it is a matter worthy of the consideration of the hop farmers, inasmuch as they would pay, by such an arrangement, less than they do pay now, or have paid for a great many years.

1272. In the event of a blight, do you think that the planters would be able to pay the duty per acre?—If you take a period of 10, 12, or 15 years, he would still pay less than the duty on hops is at present.

1273. That is, assuming an acreage duty of 3 *l.*?—Assuming an acreage duty of 3 *l.*

1274. Sir *John Shelley.*] Supposing the man had three bad crops together and he found the duty was fixed at 3 *l.* per acre, would not he rather be against paying upon the deficient crop?—There is no instance upon record of hops having been blighted for three successive years.

1275. Whereabouts do you live?—At Icclesham, near Rye.

1276. Is not that one mile from Udymer?—Yes.

1277. Is not there such a thing as what is called the Udymer blight?—Yes, there used to be; but, unfortunately, I have been there two years, and I have had two bad hop years.

1278. Is yours low land?—It is, generally speaking, low land and marsh land.

1279. Is that more subject to blight, or less subject to blight, than high land?—When I was a boy, 30 years ago, they were more subject to blight; I think they are less so now.

1280. To what do you attribute that?—To the superior mode of cultivation.

1281. As to draining, or what?—In every respect.

1282. Sir *John Shelley.*] Should you say, therefore, you think that, generally speaking, as regards the hop cultivation, there is, in consequence of the improved cultivation, less blight than there was in former days?—That is my opinion.

1283. Do you know at all whether, as regards Kent, that is so?—I could not say whether it is so in Kent or not.

1284. Do you know whether any complaints have been made of the quality of the best kind of hops having been deteriorated, owing to their attempting to grow larger crops of late?—I believe that is the case in some parts of Sussex, where, from the quantity of artificial manure, there has been an increase in the quantity, but the hop has not been so good in quality.

1285. Have you heard any complaint in Sussex, and Kent also, of the deterioration of the quality, consequent on the increasing of the crop?—I have not heard of it in Kent; I have heard of it.

1286. Mr. *Knight.*] Have not your family been large growers of hops?—They have.

1287. From what you have heard, do you think they have found it an unprofitable occupation?—I should state that my father was a large grazier as well as a hop planter; I think his farm amounted at one time to between 4,000 and 5,000 acres, and for a period extending over 40 years he made a considerable sum of money under those circumstances.

1288. Sir *John Shelley.*] Can you state whether, generally, in the county of Sussex, the quantity of stock bred is less than it used to be?—I think it is less.

1289. Do you know whether the fairs about the time of the duty day are considered, generally speaking, to be dull fairs, in consequence of the hop grower being obliged to meet that payment?—I cannot say that I do. I cannot say that is the case at all, because the quantity of stock having considerably lessened, the fairs and markets cannot be said to be over-provided at all.

1290. *Chairman.*] Did not you say that yours was a favoured district?—We grow large crops.

1291. Mr. *Knight.*] What has been the amount of your crops in the last two years?—I have grown nearly a ton per acre.

1292. That is each year?—That is each year.

1293. How many acres of hops have you?—Twenty-seven acres, upon the farm I now hold.

1294. Have not your family very large hop fields?—Not now.

1295. *Chairman.*] What is the rent of land in your neighbourhood?—The hop land, if taken by itself, unconnected with the other farm, would possibly be let at 3 *l.* an acre.

1296. Sir *John Shelley.*] Are you aware that, in the Weald of Sussex, the rent is much lower than that?—Of course.

1297. Are not you aware that there is land in the Weald of Sussex which is let as low as 10 *s.* per acre?—I am quite aware of that.

1298. And are you aware that there are hop gardens and farms in the Weald of Sussex where the land is let at that low rent?—I have understood so.

1299. Putting aside the case of Kent, as regards Udymer and any places in the Weald of Sussex, where the rent is 10 *s.* an acre, do you think to put a fixed duty per acre upon the two would be right, as regards the two places?—I am still of opinion that, under all circumstances, as I stated before, knowing the great indisposition upon the part of the farmers of the county of Kent to a fixed duty, that if a duty of 3 *l.* per acre could be placed upon the lands, it would be beneficial to all parties interested, and it would get rid entirely of a great excitement about the repeal of the foreign duty; I cannot help thinking that, although there might be jealousy on the part of the planters who live in less favoured districts than myself, still if they can be brought to consider the matter fully in all its important bearings, I think they cannot but take the opportunity, and close with the Chancellor of the Exchequer for 3 *l.* per acre duty.

1300. For fear of free trade?—Exactly so.

1301. You do not go along with those who think that it would be better that they should have free trade, and know certainly what they are about, than be put under an acreage duty where they begin with a burden upon their backs, which they will have to carry as against your district?—I think that if we have free trade we shall never know what we are about, unless the malt tax is first repealed.

1302. *Chairman.*] I think you said that the duty you pay at present amounts to a great deal more than 6 *l.* 10 *s.* per acre?—I certainly recollect, at this present moment I am speaking of my own farms; I have an impression that I pay duty upon only 27 acres to the amount of upwards of 400 *l.*

1303. When you talk of the acreage duty do you at all consider what, upon the average of years, other hop-growing districts pay per acre under the present system?—There is a very wide margin; but an account has been prepared before, which I countersigned when going upon some deputation, in which there was a statement put in, by which it appeared that all parties would pay infinitely less than they have to pay. There is a great difference between the parties who grow large crops and those who grow comparatively speaking small crops, but it was made evident that all parties would be considerable gainers by it.

1304. Mr. *Knight.*] Would not the acreage duty be favourable to those who grow large crops, and equally unfavourable to those who grow small crops?—I do not understand that.

1305. Is not it half the present duty?—Yes.

1306. At present do not those who grow large crops pay more than those who grow small ones?—Yes.

1307. You would wish those who grow large crops to pay the same as those who grow small ones?—Exactly so.

1308. Then for the plantations in your part of the county, it would be a great advantage?—It would.

1309. Would it not be an equal disadvantage to others?—It would be an advantage to us, because nature has given us an advantage which she has denied to others, but still it would be an advantage to them.

1310. Sir *Edward Dering.*] Do you think it would be just, supposing a man could only grow 7 cwt. per acre, for him to pay the same as a man who had raised a ton an acre?—I do not think it would be exactly just.

1311. *Chairman.*] Would not it depend upon the amount of money that the

Mr. *H. Selmes.*

15 June 1857.

article produced?—Very much indeed; with reference to the present duty, the hops that are worth 70 *s.* per cwt. pay the same as those which are worth 6 *l.* or 7 *l.*

1312. Sir *Edward Dering.*] What do you consider the difference of value between the best Kent hops and the best Sussex hops?—I should say 1 *l.* per cwt.

1313. Should you imagine that in some parts of Kent the hops might be 1 *l.* per cwt. more valuable than those in other parts?—I should.

1314. Do you think that the difference between the best Kent and the best Sussex hops is about 1 *l.* per cwt.?—I should imagine so, speaking without knowledge on the subject.

1315. *Chairman.*] Would not the only fair thing be a duty on the value of the crop?—That would be the fairest thing, but I am afraid it is impracticable.

1316. That would be a duty *ad valorem* on the quantity?—Yes; an *ad valorem* duty.

1317. Sir *Edward Dering.*] That you look upon as an impossibility?—I do; and I do not think that any Chancellor of the Exchequer will take the trouble to do it.

1318. *Chairman.*] Is not generally the rent of the land an indication of the value of the crop?—No. I think the quantity of tons grown per acre depends very much upon the state of farming.

1319. Is not the rent of the land, as a general rule, an indication of the value of the crop which that land would yield?—I should say it is so in every instance but that of hop land.

1320. Why is the hop land different from other lands?—The farming upon hop land varies so materially according to the scheme of the hop growers; one man manures twice as much as another.

1321. Does not he expend more capital?—Yes, but the rent of the farm will be the same.

1322. As a general rule, would not a man give higher rent for that land, which in proportion to the capital he expended upon it would produce the greatest amount of hops?—I scarcely understand the question.

1323. Supposing a man was prepared to expend 25 *l.* on an acre of land, which he hired, would he not give a higher rent for that land which, in return for the 25 *l.* which he laid out upon cultivating it, would yield him the more valuable crop?—I scarcely understand that question.

1324. Is not the highest rental given for the most valuable land?—Yes, except for hop grounds; it by no means follows that the highest rented hop ground is the best.

1325. Sir *John Shelley.*] Of course, in hop cultivation, as in everything else, there are men who farm the hops well, and men who farm the hops ill; but, taking two men who farm their hops equally well, I would ask you whether, beyond a certain point, any amount of capital that they lay out on account of manure will necessarily bring an increased crop?—No, certainly not.

1326. Then, in fact, beyond a certain point, upon the average of years, all the cultivation in the world will not ensure a crop?—Just so. But there is one thing that must be remembered, that the value of hop lands depends very much upon the situation.

1327. Would not that be taken into account in the rent?—It would be taken into account in the rent; but that does not interfere with the quality of the land.

1328. Supposing that you had a field in a position particularly well suited for growing hops, and a man came to you to rent it for the purpose of growing hops; would not you at once put an extra rent upon it, in consequence of the higher risk?—Yes, I should.

1329. *Chairman.*] Did not you say that the land in your district is worth 3 *l.* an acre?—No, I did not say that; I said that of my hop land, which is a particular kind.

1330. Is not some hop land let for 10 *s.* an acre?—Not in our district; in Surrey that is the case.

1331. Would not the same amount of capital, expended upon land that was worth 3 *l.* an acre, produce a more valuable crop than if it were expended upon land worth 10 *s.* an acre?—Of course.

Lunæ, 22° *die Junii*, 1857.

MEMBERS PRESENT.

Mr. Ball.	Mr. Beresford Hope.
Mr. Bass.	Mr. John Locke.
Mr. B. Blakemore.	Mr. Wykeham Martin.
Mr. Brand.	Mr. Knight.
Sir Edward Dering.	Sir John Shelley.
Mr. Dodson.	

JOHN GEORGE DODSON, Esq., IN THE CHAIR.

Mr. *Robert Tooth*, called in; and Examined.

1332. *Chairman.*] YOU are or have been a hop grower, I believe?—I have been a hop merchant and hop grower for 40 years.

1333. In what county have you been a hop grower?—In Kent.

1334. In what part of Kent?—At Cranbrook, and Staplehurst, and Marden.

1335. Are those places in the Weald of Kent?—They are in the Weald of Kent.

1336. Is that a clay soil?—Clay in part; principally so at Staplehurst and Marden, and rather thinner in character at Cranbrook.

1337. Are you acquainted with the Weald of Sussex?—Yes, I am.

1338. Is the soil in the Weald of Kent, which you have cultivated, superior to that in the Weald of Sussex?—My Kent land is generally so.

1339. Could you give any account of the expenses of cultivating an acre of land in the Weald of Kent?—Yes, I can.

1340. Will you state them to the Committee?—The expenses range from 15 *l.* to 30 *l.* per acre. The average, taking the entire plantation, would be, I suppose, pretty nearly upon 22 *l.* per acre.

1341. What is the rent of your land?—The land which I occupy, or rather have occupied, would upon the whole land be about 30 *s.* per acre.

1342. Sir *John Shelley.*] Is that about the average rent of the land in the neighbourhood?—It is rather above the average. I should think the average would be about two-thirds of that, about 1 *l.* per acre.

1343. *Chairman.*] What is the extraordinary tithe of land in Kent?—We have none in Cranbrook, that is included in the modus; but we pay in Staplehurst and Marden two different amounts, in one parish 16 *s.*, in the other 18 *s.*

1344. Mr. *W. Martin.*] Which is 16 *s.* and which 18 *s.*?—I am not quite sure, but I know that there is that difference.

1345. Sir *John Shelley.*] Is there no extraordinary tithe in Cranbrook?—Not in Cranbrook; it is included in the modus, that is to say, in the small tithe. We pay no extraordinary tithes in Cranbrook.

1346. Supposing land goes in that parish out of hop cultivation, does it make a difference in the amount of tithe?—None whatever.

1347. That state of things is peculiar to the district, is not it?—Quite peculiar.

1348. Will you state what part of the Weald of Kent it is in which it prevails?—I am not aware of any other parish than Cranbrook. All the surrounding parishes, I believe, pay tithes.

1349. Can you speak to the expenses of cultivation in the Weald of Sussex?—I can give no more than a general account of it. I have been long acquainted with the expenses of hop cultivation, and I understand what the expense is pretty closely. I should think that there would be very little difference between the expenses in Sussex and those in the Weald of Kent. I think those in Sussex would be rather the less of the two.

Mr. *R. Tooth.*

22 June 1857.

1350. Sir *Edward Dering.*] What do you include in the 22 *l.* an acre which you have stated as the expense of the cultivation of hops?—The rent of the land, the tithes, where there are any, all the taxes of course, manure, and all labour up to the time of picking.

1351. Everything with the exception of picking?—Everything with the exception of picking. From the 1st of January to the 1st of September, the expenses amount to 22 *l.* per acre.

1352. Exclusive of picking, drying, and the duty?—Yes.

1353. *Chairman.*] You state the expenses of the cultivation of hops to vary from 15 *l.* to 30 *l.* an acre?—Yes.

1354. Must not the rent, the labour, and many of the expenses of cultivation, be the same in all instances?—They are not the same in all instances. I think the expenses vary just as the quality of the soil varies, or rather its quality as regards the production of the hops.

1355. Which would be the cheapest cultivation, that on the poor land, or that on the rich?—That on the poor land would be on the cheapest cultivation.

1356. How do you show that?—The bine of course, being stronger on the rich, requires stronger poles. The persons occupying some descriptions of land of an inferior quality cannot afford to carry on the cultivation highly, and therefore they keep expenses under in the closest manner.

1357. Sir *John Shelley.*] Do you mean to say, from your experience, that the same amount of labour is not bestowed upon the poor land as upon the good land?—No, it is not.

1358. If you put two farmers of equal capital and equally determined to farm their hops well, would there be any difference of cultivation upon the poor land as compared with the rich, with the exception of the difference of the size of the poles?—Yes, where they get land capable of the production of hops planters understand that; they know what land is capable of producing, and therefore they begin by an expensive cultivation and manure, and then, by producing a stronger bine, it is necessary to pole much more expensively.

1359. Putting on one side the difference of expense as regards the 14 or 16 feet pole as against the 12, do you mean to say that no one on poor land is ever found laying out anything like 30 *l.* or 22 *l.* an acre in the cultivation of hops?—There are two descriptions of poor lands; one is capable of being made to produce a heavy crop; another is incapable of it; the soil may be very thin; it may be dry and hot, and if you were to apply a quantity of manure it would not operate profitably, and therefore planters cannot go to that expense on such soil.

1360. Do you get to the question of what is good land and what is bad by the rent that it fetches?—It is not always so with regard to the producing power of land for hops.

1361. Does not the rent rather increase according to the quality of the ground for producing any hops?—Of course it would. When I am stating the expense of cultivation to range between 15 *l.* and 30 *l.*, I speak of the poorest description, and of the very best that good land is capable of producing; and, as planters understand that, they farm up to the power of the land, that is, by largely manuring and extensively cultivating, which brings on the expense of poles; and as much manure is applied as the land is capable of receiving to profit.

1362. Do you mean to say that the better the land the higher the cultivation required?—No, I do not say that; I have very good land not capable of producing so many hundredweights an acre as land that is peculiarly adapted for the growth of hops.

1363. But supposing two persons are occupying the same quality of land, and the one has capital sufficient to work it and the other has not, do you mean to say that the man who has the large amount of capital, and farms his land well, does not make it produce more than the other?—He will most assuredly; but the former question was not exactly to the same point as this. You were speaking of poor land, whereas I was speaking of some land which, although poor, was more capable of producing hops than another.

1364. You stated the expense of cultivation in the Weald of Kent to vary from 15 *l.* to 30 *l.* an acre?—The expense of cultivation depends entirely on the power of production of the land. You may from very poor land produce a favourable

favourable result, and there is another description of poor land which is peculiarly adapted for the growth of hops, which may be made to produce very largely.

1365. Sir *Edward Dering.*] Do not you mean to say that the same principle which applies to the production of any other species of crop, does not apply in the same manner to the hop crop, on account of the uncertain nature of the produce?—The produce of hops is very peculiar; it is very different to corn. Now, I know some land of which the rent was simply 10 *s.* per acre, and the farmer trenched it, and found the soil deep although thin and poor, upon which he expended a sum of money in the shape of manure; and having produced a strong bine, of course he had a large expenditure in the shape of poles, and the expenses all increased together.

1366. Sir *John Shelley.*] Are you speaking of the expenses up to the time of picking?—Yes.

1367. Barring the question of the size of the poles, in what way do the expenses increase?—In the shape of manure and cultivation. Upon such land there is no question that the expenses of cultivation and manure would be from 20*l.* and upwards an acre.

1368. *Chairman.*] When you speak of poor land, does not that observation refer exclusively to thin hungry land?—Yes, I allude to that soil when I speak of very poor land; but when I speak of thin soil, that is, a thin quality of soil, and a thin soil suitable for hops; I allude to the deep soil which is often found in Kent.

1369. Sir *John Shelley.*] You say that the expenses are increased per acre?—Yes.

1370. Do you mean to say that the expenses increase per acre after the draining and manuring to which you allude?—It depends upon the strength of the planter, and upon the spirit of the planter, whether he chooses to try for a large crop.

1371. In what way do the expenses per acre increase between the time that the farmer has trenched and manured his land to the time the picking has begun, by his having a large crop rather than a small one?—The increase in the expenditure would be principally according to the strength of the plant.

1372. In what way do the expenses increase, with the exception of the size of the poles, after the farmer has trenched and manured his land until he begins to pick the crop, as between a small crop and a large one?—In the cultivation and manure.

1373. Is not that done already?—No, not always.

1374. Is not the expense of trenching and the expense of manuring the same, whether ultimately he has a large crop or a small one, taking the generality of years?—Where that cultivation exists, and where that manuring exists, it is so.

1375. Do not the expenses commence when the large produce is about to be picked?—They exist during the whole year of cultivation.

1376. After the manuring and trenching has been done, up to the time of the beginning of the picking, what increase of expenditure is there as between a large crop and a small one?—It is in the curing of the crop and the duty.

1377. Mr. *Wykeham Martin.*] Is not your meaning this, that persons who believe that they will by increased cultivation get a better crop are willing to incur those increased expenses for that purpose?—Yes.

1378. And for that purpose they trench the land?—The trenching would be done at the time of planting.

1379. They dig twice perhaps instead of once?—They would either plough two furrows deep, or they would trench two spit deep. They would thus lay a good foundation for planting; and having done that it is a good investment to manure highly and to cultivate highly; and having done those two things it brings on a strength of bine which makes it necessary to pole extensively.

1380. Do not you mean to say that they provide larger poles, knowing that the steps that they have previously taken will render those larger poles necessary?—Yes.

1381. So that upon the whole your evidence goes to this, that the person who undertakes the farming of a piece of land that he believes will be productive, goes to work in a very different way from the farmer who takes what he knows to be an unproductive piece; the one cultivates upon what may be called

Mr. *R. Tooth.*

22 June 1857.

high pressure, and the other upon what may be called low pressure; is not that so?—Precisely so.

1382. Sir *John Shelley.*] Is not the substance of your evidence this, that there is a great deal of land under hop cultivation which, in point of fact, ought not to be cultivated with hops?—It is very badly managed.

1383. Is there anything peculiar in the cultivation of hops over any other cultivation, which would tend to show that high cultivation in the case of hops alone is a thing which ought to be followed; does not the same thing bear upon corn or any other produce, that the higher you farm, the better, upon the average of years, will be the result?—Undoubtedly.

1384. Mr. *Beresford Hope.*] Do your observations apply entirely to the Weald of Kent?—No, not entirely; I have some extensive knowledge of other parts.

1385. When you were speaking comparatively of the poor land and the better land, were you speaking of land in the Weald of Kent, or were you speaking of hop land generally?—Generally; there is this distinction, persons who raise what is called Jones' hops upon their poor land require a small outlay for poles, and even for manure; where they are grown, the expenses will be of the character of 15 *l.* or 16 *l.* per acre, but when we get a plantation, which produces much more bine, the cost of the poles is double, or even treble.

1386. Sir *John Shelley.*] Is not the 12-foot pole used for Jones' hops?—Yes; or 10-feet.

1387. Are there many grown with 10-feet poles?—Yes.

1388. What is the difference of expense between 10-feet poles and 16-feet?—An immense difference.

1389. What is the difference?—The cost of poling an acre of hops with 10-feet poles would be a little more than 10 *l.*

1390. How many thousand poles to the acre?—Thirty-six hundred.

1391. How much do they cost per hundred?—Five shillings a hundred; 50 *s.*, 1000; I have sold a great number for the purpose of poling Jones' hops.

1392. What is the cost of the 14-feet poles?—£. 36 an acre.

1393. How much would that be by the 100?—Twenty shillings.

1394. Mr. *Wykeham Martin.*] Do you know the expense of the 16-feet poles?—They would cost 50 *l.* an acre.

1395. How long do those poles last?—The 14-feet will last, upon the average, about five years.

1396. And the others?—The others just a year or two; the 10-feet two years, and the 12-feet probably three.

1397. Sir *John Shelley.*] Is there much land in the Weald of Kent under hop cultivation, in the hungry land you allude to as being so badly farmed?—I should think there is about one-fourth of that sort of land.

1398. That is farmed in that style?—Yes.

1399. Mr. *Brand.*] Grown with the Jones' hops?—Yes, and with very aged grape hops.

1400. Sir *John Shelley.*] Did I rightly understand you to say that you knew nothing of the cultivation of hops in the Weald of Sussex?—Not much. I should imagine that the cost of cultivation in the Weald of Sussex would be something less than in the Weald of Kent.

1401. Would it be lower than 22 *l.* an acre?—Rather. I should think they purchase the poles cheaper.

1402. Is there anything else, except as regards the poles, in which you would say that the cultivation in Sussex would be cheaper than that in Kent?—It is from the cheapness of the poles, and from the rather lower rent. In rent and poles I think they would save about 2 *l.* an acre.

1403. Do you know anything of the produce of the Weald of Sussex?—Yes.

1404. What would you say was an average of an acre of hops in the Weald of Sussex?—In a large crop sixteen hundredweight of grape hops. If a planter had 40 acres of grape hops I have no doubt that he would have grown 32 tons last year; but he would not get that quantity if he had many Jones' hops, or many very old grape hops.

1405. As regards the expense of cultivation, as regards the growth, or as regards the production, the expenditure in the Weald of Sussex would be the same as inthe Weald of Kent?—Yes, nearly so.

1406. Is

1406. Is there anything else that would make a difference?—No. I think there would be a reduction in the shape of labour; they pay their labourers somewhat less than we do.

1407. What is the rate of wages in your neighbourhood?—2 *s.* 3 *d.* and 2 *s.* 6 *d.* a day.

1408. Do you know what is the rate of wages in the Weald of Sussex?—No, I do not.

1409. You do not know whether they can earn more than 2 *s.* 6 *d.* a day on the hop land?—Yes; they earn more by the piece, or by the contract generally. They will earn from 16 *s.* to 18 *s.* per week.

1410. You do not know that the rate of wages in the Weald of Sussex is not above 12 *s.* at this moment?—I do not say that they are not above 12 *s.*; but they pay rather less; we pay 2 *s.* 3 *d.* and 2 *s.* 6 *d.* I often have men coming to me from Sussex, and they always want to stop on in the county; they do not want to go back.

1411. Is not the supply of labour larger in Sussex than in Kent?—I suppose so.

1412. *Chairman.*] When you were speaking of the greater expense of cultivation on the better land, were not you speaking of those stiff lands in the Weald which bear heavy crops, and not of the thin hungry soils in the Weald which scarcely produce any hops at all?—Yes.

1413. You were speaking of those two different kinds of land?—Precisely so, because for Jones' a very small outlay is required for poles, and those persons manure very little.

1414. You were not comparing the lands in the Weald of Kent or in the Weald of Sussex with the best districts of Kent?—No; I should imagine that the amount of labour expended in cultivation upon the land in Mid-Kent was not so great as in the Weald of Kent.

1415. Sir *John Shelley.*] Supposing that there were two farmers, A. and B., living on that land which you allude to as being farmed so badly, and that A. lays out a great deal of money upon that land and farms it properly, and B. farms it in the way you describe, will A. get a larger crop than B.?—Yes, but not in all cases, because you must make a distinction. Under the title of poor thin land, there are two classes of land, one of which, although thin and poor, is well adapted for the growth of hops by something peculiar to the soil, while the other is not, yet they are both unproductive as corn land.

1416. Supposing these two men to live on the same land, do you mean to tell the Committee that you believe that if one farms well and the other farms badly, the man who farms well will not get a better crop upon the average of years than the other?—He will undoubtedly; but it will not answer his purpose to go into a great extent of outlay. He will not be able to lay out the amount upon the thin soil, and therefore large poles will be unnecessary, excepting as I have stated.

1417. Mr. *B. Blakemore.*] Has not aspect something to do with it?—Yes.

1418. What is the prevailing wind in that part of the county?—I do not know that we have any particular wind.

1419. Is not the east wind very injurious to hops?—Yes; of course aspect would have something to do with the prospect of hop cultivation, but we must bear in mind the diversity of soil. Although it should all be thin soil, we may have in the one case a large amount of expenditure without success, and in the other it would be unprofitable.

1420. Sir *John Shelley.*] Do you think it is advisable that the law should encourage the growth of the plant upon that land where if farmed it will not pay; do you think it is advisable that the duty should tempt people to grow hops upon that land?—The duty does not tempt them.

1421. Not by the exclusion of foreign hops?—No.

1422. Mr. *Knight.*] Will that land pay to grow corn upon?—No, excepting the last few years.

1423. In some years it will not?—I have known land in which it would not.

1424. Even with the same cultivation as you grow hops?—When corn is very cheap such land would scarcely be productive as corn land.

1425. Does it pay better as a hop land than as corn land?—I apprehend, in general, that the planter gets nothing at all.

1426. Then that land is worth nothing for hops or corn?—No. Such land is often planted with a portion of better land, for the purpose of using up the

Mr. *R. Tooth.*

22 June 1857.

poles. There are quantities of inferior poles which are useless; and they have a few acres of Jones' hops, which can be grown upon the thin poor land, and they suit for working up the poles; but I apprehend they get nothing by it.

1427. Mr. *Hope.*] You tell us that, even supposing the hop cultivation is unprofitable in many cases, yet it is so completely the custom of the country, and so hangs upon the growth of underwood, that the farmer cannot think of doing away with it?—Yes. I do not know how it is that persons pursue the hop cultivation in the manner they do, that is to say, under losses.

1428. *Chairman.*] Do not you think that the system of long credit given by the Government is, in some measure, a temptation to the farmers to go on?—Yes. My opinion is that, as to persons of small capital, the arrangement made for the duty to remain over has been an inducement for a person to take a farm.

1429. To return to the expenses per acre, which you stated to be 22 *l.* per acre, that is supposing the hop garden to be already brought into cultivation?—Yes.

1430. That is the expense necessary to carry it on from year to year?—Yes.

1431. Could you tell the Committee what the expense of bringing an acre of land into bearing for hops is?—Yes; from 7 *l.* to 10 *l.* per acre.

1432. The first year it bears nothing?—Just so.

1433. The second year it bears very little?—Yes.

1434. What do you put as the entire expenses of the first two years?—We get a small produce the second year; we generally consider that the hops at the end of the second year have cost 10 *l.* the acre.

1435. Mr. *Ball.*] Up to that time?—Up to that time. The first year will be an expense of 6 *l.* or 8 *l.*; the first year of poling scarcely ever pays the cost of cultivation; we consider that the rearing of a plantation costs 10 *l.* per acre. If I plant 100 acres of land in hops, at the end of the first year of poling it will have cost me 1,000 *l.*

1436. Mr. *Brand.*] You would be in that case 1,000 *l.* out of pocket before you received any return?—Yes.

1437. *Chairman.*] Can you speak as to the variation of crops from one year to another upon the same plantation?—Yes. In 1854 I had 76 acres, producing me a pocket per acre.

1438. Sir *John Shelley.*] That would be 1 ¼ cwt. per acre?—Yes. Upon some I grew ¾ cwt. per acre, and upon others about two cwt. and less. The average was a pocket per acre; upon 76 acres it was 76 pockets.

1439. Do not you calculate that the pockets or bags in Mid-Kent hold 1 ½ cwt.?—Whether we put them in pockets or bags we speak of 1 ¼ cwt. as a pocket.

1440. *Chairman.*] That was in 1854?—Yes.

1441. What was it in the other years?—In the following year I grew 22 ½ cwt. upon my ground.

1442. Mr. *Brand.*] Upon the same ground?—Upon the same ground.

1443. *Chairman.*] Can you tell the price in 1854 and 1855?—Some of my hops go out of the country, in fact, and therefore I cannot speak of the price.

1444. What was the market price of Weald of Kent hops in those years?—I was offered 18 *l.* per cwt. in 1854, which I refused.

1445. What was the price of the same class of hops in 1855?—Speaking of all the inferior sorts generally, they would range from 30 *s.* to 95 *s.*

1446. Mr. *Knight.*] Were not the 30 *s.* some that were imperfectly picked, that were left behind?—Yes, it might be; but in 1855 one-fourth of the entire growth were sold from 30 *s.* to 55 *s.*

1447. *Chairman.*] What sort of hops do you grow?—I have grown the Goldings, the Jones', and the grapes.

1448. For what class of hops were you offered 18 *l.* in 1854?—For grapes.

1449. What was the price of grape hops in 1855?—Ninety-five shillings, of precisely the same quality, the same colour and quality; they were very fine of that sort.

1450. What class of hops were those that were selling for 30 *s.* per cwt.?—They were the last pickings, which had become very brown; I think there was great injury done by their standing too long upon the poles.

1451. Mr. *Knight.*] Were not they spoiled hops?—Not spoiled; they were useful

useful hops, but from the great quantity grown over the consumption, they were not wanted, and therefore, being brought upon the market, they were taken at a low price.

1452. There was a great quantity upon the market, more than were wanted?—Yes.

1453. *Chairman.*] Could you tell which of those two years the crop paid you best?—I lost money both years.

1454. By which did you lose most?—I lost most in 1855.

1455. Did you lose most in the abundant year?—Yes.

1456. How do you account for that?—From the great quantity and the low price which they fetched in that year.

1457. Was the price depressed solely from the abundance of hops in the market?—Of course, the price is only ascertained by the supply and demand; we do not know any other rule.

1458. The cost of production does not enter into the account?—Not at all; if the duty fell to-day, you would have the prices rise; if the duty gets up, then you have the prices lower.

1459. My question was, was the low price of 1855 solely to be attributed to the large crop?—Not solely to that; it was from the defective quality of some, as well as the large crop.

1460. Was not there some other cause which affected the price of hops, independently of the great supply?—The duty has always a bearing on the price at certain times.

1461. In what way does the duty affect the price?—When the time approaches for the payment of the duty, I understand the planters sell some hops for the purpose of paying the duty. The hops are thrown upon the market to meet the payments that are wanted; that is generally known by the buyers, and they take advantage of it.

1462. The effect of the duty is to force the farmers to sell?—To lower the price undoubtedly. I have never seen any other operation than lowering the price.

1463. Does the grower sell his hops by so much dearer as to make up for the amount of the duty?—He has no opportunity of doing that; he cannot charge the duty in those cases. It is unlike the maltster; the maltster takes up a certain quantity of barley, which he knows will be required, and so long as malt will pay a profit he will malt, but as soon as it is otherwise he ceases to malt. He can regulate his stock, but the hop planter has no such opportunity.

1464. Then the hop planter may lose the amount of duty?—Yes, because he cannot govern his supply. He must either give up farming altogether, or he must take the risk of a large crop or a small one; and some years he produces more than is wanted, and less in others.

1465. And the duty is charged upon the quantity of hops?—Upon a certain quantity. I consider that in the years 1855 and 1856 a portion of the planters sacrificed from 600,000*l.* to 700,000*l.* I think I can prove that.

1466. Will you be good enough to explain that to the Committee?—Yes; I can also state as to the quantity grown per acre. I am speaking of 1855 and 1856.

1467. Mr. *Knight.*] Were not they the two largest growths that have ever taken place?—Yes. The years 1855 and 1856 averaged 11 cwt. per acre in each year.

1468. Do you mean that that was the average all over England?—Yes, the entire growth; it is an average of 11 cwt. per acre upon each year, putting the two years together.

1469. Do you mean the average per year?—Yes.

1470. Mr. *Brand.*] Do I rightly understand you to say that there were 22 cwt. per acre grown in the two years?—Yes, upon the average of the two growths. I will take the entire growth of 1855, and also of 1856, and I find there is an average of 11 cwt. an acre for each year, so that there was 22 cwt. per acre.

1471. Sir *John Shelley.*] Was there exactly the same average in the year 1855 as there was in the year 1856?—The average was greater in 1855 than in 1856.

1472. What was the average of 1855?—Nearly 13 cwt.

1473. What was it in 1856?—Nine cwt.; and then the cost of producing

Mr. *R. Tooth.*

22 June 1857.

that crop was 22 *l.* per acre for each year; that was 2 *l.* per cwt. That was the first cost; then the cost of picking, drying, packing, and all expenses attending transit to market, and the sale charges, amount to 1 *l.* per cwt. more, which is 11 *l.*; and the duty we call, in round numbers, 1 *l.* per cwt. (it is about 18 *s.* per cwt.), which would be about 10 *l.* an acre, or 9 *l.* 18 *s.* more, which will give an entire cost of 42 *l.* 18 *s.* for the 11 cwt. of hops. Now one quarter of the crop of 1855 sold at from 30 *s.* to 50 *s.*; another quarter sold at from 50 *s.* to 70 *s.*, which gives an average for a moiety of the crop for 1855 of 50 *s.* per cwt. Two-thirds of the crop of 1856 sold at prices varying from 50 *s.* to 74 *s.* per cwt., giving an average of 62 *s.* for that year, which gives an average of 56 *s.* per cwt. for a moiety of the crop of 1855, and two-thirds of the crop of 1856.

1474. Mr. *Brand.*] How do you ascertain that those quantities were sold for those prices in that year?—From my personal knowledge of the trade; I am a merchant.

1475. Can you speak positively as to those facts?—Yes, to that question. The quantities were larger than that. I am speaking of the market prices.

1476. Sir *John Shelley.*] Do I rightly understand you to say that your are a merchant, and not a factor?—I am not a factor. I adduce that to show the loss upon those hops. The planters growing those hops realise 30*l.* 16*s.* for the 11 cwt. of hops per acre; that produces a loss of 12*l.* 2*s.* per acre upon half the crop of 1855, and two-thirds of the crop of 1856, which is more than all the excise duty upon those portions. Now I will speak of the increased value of the other portions of the growth. The other half of the crop of 1855 sold at prices varying from 4*l.* to 6*l.* 6*s.* They were at all prices in fact, 85*s.*, 90*s.*, 95*s.*, 105*s.*, 5*l.* 12*s.*, 6*l.* 6*s.*, according to the quality

1477. Mr. *Knight.*] What was the highest and the lowest price?—The highest was 6*l.* 6*s.* I know none higher than 6*l.* 6*s.* in that year, nor in this class any that were lower than 4*l.*; and therefore it is that, whilst one-half of the planters in 1855 and two-thirds of the producers in 1856 lose all the duty, it is found that the other portions of planters realise all the duty and a profit into the bargain. There is that difference in the position of the planters, that, whilst one class of planters is in a state of prosperity, under the circumstances of the last year and year before, there is another portion of the planters in a state of bankruptcy, sacrificing not only all their ingenuity, and the employment of capital, and the interest of their money, but everything else.

1478. Sir *John Shelley.*] Does not the duty weigh as heavily on the one class as upon the other?—No; because they are able to get more for their produce.

1479. Mr. *B. Blakemore.*] Does the difference depend upon the good cultivation of one grower, or upon the inferior cultivation of the other?—No; it is from the peculiar quality of hop which is produced.

1480. Is it not the fact that those that grow the finer sorts of hops, and get the higher price, do not produce so much as those that grow the worst sorts, and get a less price?—Yes; speaking generally, they do not. But from the course of cultivation which has been going on for the last 10 years, and which is very different to what I remember in early life, they are enabled to produce a larger quantity in those districts than they formerly did; they formerly did not produce heavy crops.

1481. If the ground produces eight cwt. per acre they would pay the duty upon that amount, while the man who got double the quantity would pay the same amount of duty per cwt., but it would form a more heavy amount?—Yes; while one person pays 20 *s.* upon 40 *s.* in the shape of duty, the person who grows hops worth 6 *l.* only pays 20 *s.*; therefore, one pays three times as much as the other.

1482. Sir *John Shelley.*] Does not the duty then bear lighter upon the man who grows the better quality of hop and the smaller quantity, than upon the man who grows a large quantity of hops, and of an inferior quality?—Yes; and he gets it back on his sale.

1483. *Chairman.*] As to those two years you draw a broad distinction between the prices at which a portion of the crop sold, and those at which another portion of the crop sold; is that distinction a natural distinction, arising from the quality of the hops?—It is a natural distinction, arising from the quality of the hops.

1484. Is there a broad line of demarcation between the different qualities of hop?—

hop?—Yes; the Wealds of Kent and Sussex can never displace the better class of Kent hops. It is a remarkable thing, that notwithstanding all the increased cultivation, and notwithstanding all the abundant supply that is given by the Wealds of Kent and Sussex, they can never displace the best hops grown. And so I have always viewed the question of free trade with regard to foreign hops; there would be the same difficulty in the Belgian hops or the American displacing the inferior kinds of English hops, as the inferior kinds of English have in displacing the best kinds of Kent hops.

1485. Sir *John Shelley.*] Do the hop merchants generally buy by sample?—Yes.

1486. Exclusively?—Yes.

1487. Do you sell by sample?—Yes.

1488. There is no general order given to you to purchase?—When confidence is placed between the brewer and the merchant, which of course exists extensively in some houses, the brewer will often order his hops without looking at the sample.

1489. Are you tied down by the brewer to bring no hops into the brewery except they have the Kent mark upon them?—No, they are not all the same in that way; probably the brewer may buy the same growth for 20 years running; he bought, in fact, a particular growth one year, and found the quality suit his purpose, and he gives his order to the merchant for the same mark the next year.

1490. Does he buy that particular growth, year by year, without reference to the changes in quality which must occur in some years?—Yes.

1491. He still goes on buying by a particular mark?—It is often the case you find it so; it is often the case; I do not say it is a rule that the brewer looks to the mark only, but to the samples, the same as other people; I believe it is the general custom for the brewers to buy by sample, and they confide in the merchant to a considerable extent.

1492. Mr. *B. Blakemore.*] I think in Sussex they grow there principally the grape and the Colegate hops?—Yes.

1493. Are those the coarser sorts or the finer sort?—They are the coarser sorts.

1494. Could you give any idea of the average produce of that land per acre?—I think it is reported at 11½ cwt.

1495. Mr. *Brande.*] Are you speaking of one year?—One year, 1856.

1496. Mr. *B. Blakemore.*] What are the sorts grown in the Weald of Kent?—Generally grapes, and some Jones's, and some Colegates.

1497. Sir *John Shelley.*] Are those the same sorts that are grown in the Wealds of Sussex?—Yes, I think they are, precisely.

1498. Then when you say the Sussex hops are of a coarser sort than the Kent hops, do you mean that the Colegate hop, and the grape hop, or Jones hop grown in Sussex is a coarser hop than those of the same kind grown in the Weald of Kent?—There is a little difference in the Sussex hop compared with the Weald of Kent; they are, I think, in most instances rather a coarser hop.

1499. Are the same hops coarser in Sussex than in Kent?—Yes; it is brought on by the soil.

1500. Mr. *B. Blakemore.*] In Mid-Kent what are the sorts grown?—In Mid-Kent they have the Goldings, and they have a superior kind of grape hops called the Canterbury hop.

1501. Are you a general hop merchant?—I have been.

1502. Do you buy Worcestershire and Herefordshire hops?—No.

1503. You know nothing of their quality?—No. My traveller has bought them when he has been on his journeys, occasionally.

1504. How do you rank them?—Not below Sussex; I have seen them of a higher quality.

1505. Are they generally coarser?—From what I have seen of them, they are of great variety; I have seen Worcestershire hops equal to anything grown in Kent; but I have seen some no better than Sussex hops.

1506. Do you know much of them from your own experience?—Very little.

1507. Sir *Edward Dering.*] What do you consider would be the average yield per acre in ordinary years of the Weald of Kent for the last seven years?—I should think 8 cwt., taking blights and large crops together.

1508. What should you think was the average of the Mid-Kent Goldings?—

Mr. *R. Tooth.*

22 June 1857.

There are different sorts; there is no distinct part of Mid-Kent which grows Golding hops only; they have a mixture.

1509. What should you say was the fair average growth of the hops of Mid-Kent?—I should think 6 cwt. for the period of seven years.

1510. Do you know anything of the East Kent hops?—Yes.

1511. What sorts are grown principally in East Kent?—They have produced great quantities of the Jones's hops lately; I should think there are one-third Jones's, one-third Golding's hops, and the other third grapes.

1512. Have the Jones's been introduced into the best districts of East Kent?—It is an additional plantation. I may mention that there has been a greater demand for the best sorts of hops than there has been a supply for the few last years; so that the best hops really have not been supplied in the quantity the brewers have stood in need of; and hence it has occurred that the East Kent planters, as well as some of the Mid-Kent planters, have introduced the Jones's hop.

1513. Have the East Kent planters generally diminished or increased their gardens during the last seven years?—I should think rather increased.

1514. Mr. *Bass.*] That is to say, they have increased generally, but not the fine hops?—Yes.

1515. Have not they increased generally, but diminished the growth of fine hops?—They have not diminished the finer sort. I think they have increased the produce of the other hops.

1516. Sir *Edward Dering.*] Do you think there are as many good sorts of East Kent hops grown as there were years ago?—There may be as many, but the increase of consumption is very considerable; therefore they require a greater supply.

1517. Is their supply now greater or less than it was years ago, of the best description of hops?—I should think that some plantations have maintained the best hops, but not increased them, whilst the consumption of the best hops has increased.

1518. Have you observed any difference in the quality of the East Kent hops now, as compared with what they were years ago?—Yes.

1519. Is it your opinion that any change has taken place in their quality?—My opinion is that the quality is not so good. I remember that, when quite a young man, the Mid and East Kent Golding hop was like a nonpareil; it would scent the room. Now we do not find that quality.

1520. Are you acquainted with the cause of that change?—No, unless it is by artificial manure, because that would give a greater produce.

1521. Have you any means of knowing the growth per acre of the best description of East Kent hops?—Yes, it is rather less than the Mid-Kent as regards the Golding hop.

1522. What should you say was the average growth?—It would be difficult for me to answer that question correctly without reference to some official report; but I know that the produce of the Golding hop in East Kent is rather less than the produce in Mid-Kent.

1523. You have stated 8 cwt. as the average in Mid-Kent; what should you say it is in East Kent?—I should say 5 cwt.; that would be equally as good a crop.

1524. Sir *John Shelley.*] I understood you to say that you did not think the growth of the best kind of hops had increased?—Not of the best class.

1525. You also have said that the consumption of the best hop has increased?—Yes.

1526. If the produce has not increased, and the consumption has increased, in what way is the difference made up?—It has been made up in part by an importation of Bavarian hops.

1527. Does that come into the market with the best Kent hops?—Yes.

1528. Is that the way in which the consumption of the best Kent hops is made up?—Yes, partly; but it has not been sufficient.

1529. You stated that there had been an increase of importation of the best kinds of hop?—Yes.

1530. And that there has been no increase in the best sorts of hops grown?—None; that is my opinion.

1531. A part of the increased consumption of the best hops has been made up by the importation of Bavarians?—Yes.

1532. That

1532. That has not made up the increased consumption entirely?—No; nor can Bavarians be altogether relied upon with regard to supplying the place of East Kent hops.

1533. Does the second rate hop, of which you say the cultivation has increased in Mid-Kent, come in to make up for the increased consumption of best hops?—Not satifactorily.

1534. Are they sold as being grown in the best districts?—Yes; for instance, a Mid-Kent planter or an East Kent planter, having a portion of Goldings and a portion of grapes and a portion of Jones's, would sell the whole to the same brewers.

1535. Would they in such a case as that fetch pretty nearly the same price?—No; they would perhaps be divided, but the custom is to supply the whole together.

1536. Does the brewer know the difference in the quality of the hops that he is buying?—Some do. It is very difficult for the brewer to know the Golding and the Jones's hops, for this reason; many of the very large consumers buy only once a year; and of course it is impossible that a person merely looking at a sample of hops once a year can judge of them.

1537. Practically, has the brewer often, when he buys a lot of hops from the same planter with the same mark, without looking at the different qualities, the best hop to which you alluded and the second rate hops which grow upon the same ground?—That would depend very much upon the merchant he deals with; of course there are men too honourable to deceive a brewer or anybody else, if they were bound to supply a certain article at a certain price; I believe there are men who might do it, but I believe there are people who would not.

1538. Should you consider it your duty in supplying a brewer with a certain quantity of hops, all grown upon the same farm, and marked with the same mark, to state to him the different qualities of those hops?—Certainly I should.

1539. Practically, you would do so?—Yes; if the brewer was to come to me and say that he wanted Golding's hops, I should not sell him Jones's or grapes.

1540. And do you think that he would be able to distinguish the two?—No, in many instances I do not think he would.

1541. Practically, in the trade, do you consider that the merchant in supplying any hops as the produce of a farm generally points out the difference of the different qualities of hops grown upon the same farm?—There are some very honourable men in the hop trade. I do not believe that those men would deceive the brewers.

1542. Do you think that the brewer is satisfied upon seeing that they are all grown in the same farm, and have the same mark upon the sack?—He is satisfied if he has the assurance of the merchant that the quality is suited to his purpose.

1543. Would the merchant make a difference in the price to the brewer, the hops all being all under the same mark?—Yes.

1544. Practically, do they make a difference of price to the brewers?—It would be a matter of consideration at the time the transaction took place. But it is an understood rule that with a portion of Jones's, a portion of grape, and a portion of Golding's, the merchant would charge an average price for the whole.

1545. Mr. *B. Blakemore.*] Do you think that the marking is of any practical use?—I think it is of very little consequence. All good growers will be sure to mark their hops, and the bad kinds, if their owners did not mark them, would be condemned at once.

1546. Suppose a pocket without a mark and a pocket with a mark, would the absence of the mark throw any slur upon the pocket?—Yes, it would; they are all sold by marks now; but if I were going into the market to buy hops, and the factor said, "These have no mark and the others have," I should buy those with the mark.

1547. Are the hop growers generally in the Weald of Kent men of capital?—I think the greater portion of them are men of capital.

1548. Does the hop deteriorate in quality by keeping?—Yes.

1549. Is it the practice generally with the farmers when they have an abundant year to keep the hops till another year, when the price goes down, and

Mr. *R. Tooth.*

22 June 1857.

and sell off?—They cannot always do just as they would wish; if the prices are low and there is no profit, they will keep some hops if they can.

1550. Are they generally men with that class of capital that they can do it?—Generally speaking, I cannot say that they are; but the generality of the planters are men of capital.

1551. When there is a large crop, the price goes down?—Yes.

1552. Then the next year, if there be a light crop, the price will go up?—Yes.

1553. Are the hop planters, in the district of which you speak, men possessing that amount of capital that they can hold their stock?—Yes, but not generally speaking; but it happens that those men who can hold are the men that grow the best class of hops; they get a good price every year; they have no necessity to hold over; it is the inferior quality and the inferior men who have the least capital.

1554. *Chairman.*] Are not those the men who grow large crops and pay heavy duties?—Yes; and they are less enabled to keep the hops than the others, who suffer no loss and can hold their hops.

1555. Mr. *Wykeham Martin.*] Did not you say that the Bavarian hops could not be relied upon?—Not in all cases.

1556. Do you mean that they could not be relied upon in quality?—No; the curing is insufficient at times, and the hops are sour. I am aware of two very large brewing firms who lost enormous sums of money in 1854 by using Bavarian hops.

1557. *Chairman.*] Did I rightly understand you to say that the demand for the best Kentish hops has increased of late years?—Yes.

1558. But the supply has not increased in proportion?—No.

1559. To what circumstance do you attribute that; is it that there is no more land now fit for supplying the best kind of hops?—No, I do not think that; I think it is owing rather to the greater quantity of cheaper hops cultivated than to any incapacity of increasing the production of the best hops.

1560. Do you think that the power of producing heavier crops has induced the planters to try commoner kinds of hops?—Some few years ago the mould was very destructive in Mid-Kent, and the Golding hop was the one that suffered most from it, and it became almost necessary to produce a rather strong plant to get any crops at all.

1561. Mr. *Bass.*] Did not they grub up the superior hops in consequence of the mould?—Very few.

1562. Are not you aware that in many instances that on grounds which were known to be planted with Golding hops, they have been replaced by other kinds which are more prolific?—No; not in the same grounds.

1563. Will you undertake to say positively that has not been much the case?—No; I say that I do not know of it.

1564. You speak of 6 cwt. an acre being the produce of Mid-Kent; do you mean that that is the produce of the Mid-Kent district of the Golding hop?—That will embrace the average of years, taking the blight and the crops together.

1565. Do you mean to say that that is the produce of the whole of Mid-Kent?—Yes.

1566. Have you paid any attention to the statistics upon this point?—Yes; that would be the produce as compared with the Weald of Kent at 8 cwt. per acre.

1567. Do you mean to tell the Committee that 6 cwt. per acre is the average produce for any number of years?—Yes; taking the blights and the crops together for Mid-Kent.

1568. Do you know what was the amount of hops last year in Mid-Kent?—That is no practical test of the average produce.

1569. Are you aware that in East Kent many grounds have been planted with a description of hops that is very showy, called the "golden pheasants?"—No.

1570. Did you never hear that phrase with regard to hop growing?—I do not know it.

1571. Have you any reason to suppose that sometimes Jones's are mistaken for Golding hops?—I have not said that.

1572. Is it a rule with the merchants when they sell hops that one grower has grown, to declare the fact, if they are of two different qualities?—When the buyer comes into the room he inquires for what he wants.

1573. If

1573. If the buyer does not inquire whether these hops are of two different characters, one part Golding and the other part something else, do you consider that it is the practice of the trade to give him notice that he is buying two different sorts of hops?—I think any respectable man would tell him what they both were.

1574. Is it the practice of the trade?—I believe so, as far as I know. I do not say that there are not some persons that would not do so.

1575. You have told the Committee that hops deteriorate by keeping; will you be kind enough to tell us to what extent they deteriorate from one year to another, supposing the average price to continue the same?—I suppose the first year's loss would be six per cent.

1576. Do you mean to say that if the hops were worth 5 *l.* on the 1st of October, and that if in the second year new hops were worth 5 *l.*, yearlings would be worth only six per cent. less?—That depends upon the quality of the hop; a very good hop would lose very little, except the aroma; the bitter quality would remain the same.

1577. Do you think that an experienced brewer would give six per cent. within the same price as they were worth the year before, there being an abundant supply of yearlings in the market?—This year there is an abundant supply of yearlings of an inferior quality; there is no limit to the difference between new hops and yearlings; but I go back to other years; the new crop being worth 5 *l.*, the price of yearlings would be 6 *s.* or 8 *s.* less.

1578. What is the value of the Mid-Kent hops of 1855?—You could not purchase the good quality of 1855 hops in the market.

1579. Is not that the largest crop that ever grew?—Yes; but I do not believe you could select a good growth of 1855 Mid-Kent hops in the market.

1580. Would you give us the price for fair Mid-Kent hops of 1855 in the market?—I do not know the price of them. There are inferior hops, worth a small sum compared with the present price of 1856.

1581. You said that the deterioration of the first year was only six per cent. upon an average?—Yes; I spoke of the deterioration of value between the yearling and the new hops; but when you ask me a question as to the difference of price, they are two distinct things. A yearling may not fetch so near as five per cent., because there are many brewers who will buy new hops who will not buy yearlings.

1582. In the market what is the difference of price between new hops and yearlings, supposing they start the same price?—I think if you could select a parcel of hops of 1856 and a parcel of hops of 1855 of the same quality, the difference of price would be 10 *s.* a cwt., supposing the quality to be the same precisely.

1583. What would be the depreciation in three years?—The deterioration in the second year is not equal to that in the first.

1584. Do you mean that it is not so much as six per cent. in the second year?—No; I have bought hops 10 years old, and I have sold them at a difference, compared with new hops, of three or four per cent. a year.

1585. Is not it a common thing to sell what are called "old olds" as low as 1 *l.* a cwt.?—There are none in the market just now.

1586. Have you not known "old olds" sold at less than 1 *l.* a cwt.?—Yes, once or twice.

1857. After what period do hops become "old olds"?—After the third year; but I must be understood, in answering that question in respect of price, to refer to an exceptional case. "Old olds" of a most inferior quality, 10, 15, or 20 years old, have been sold at 1 *l.* a cwt.; but I know of no case where hops simply three years old have been sold at 1 *l.* a cwt., unless with some defects.

1588. Have you known some sold at 30 *s.* within the last year?—I bought a quantity at 32 *s.* last November.

1589. Were they yearling hops?—Yes.

1590. Mr. *Beresford Hope.*] What would be the difference in price between 1855 and 1856?—There being a larger supply of yearlings than is generally the case, the difference is greater this year than it is upon the average of years.

1591. You said that the difference between two good samples, one of 1855 and the other 1856, would not exceed 10 *s.*; would you be willing to buy samples of 1855 at 10 *s.* less than samples of 1856?—Yes.

1592. Mr. *Ball.*] You were asked what occasioned the great difference in

Mr. *R. Tooth.*

22 June 1857.

price between the years 1854 and 1855?—Yes; the one was a very productive year, and the other was a very unproductive year.

1593. And you said that the great produce occasioned a great depreciation of price?—Yes.

1594. And you said that a maltster did not produce more malt than he knew would meet the demand, and consequently that the price of malt was not so much affected; but that what depreciated the value of hops was, that when a great quantity came in, the demand was not equal to the quantity?—Yes.

1595. Then another question was put to you as to the effect of the duty, and you said that the duty very much affected the price; do you hold that opinion still?—Yes.

1596. Are there not two things that govern the price, the quality of the supply and the quantity of the supply; if the quality is good, still, if there be not a demand for them, the price will not be high; if the quantity is great, and the quality is bad, there will be no demand?—No; except in times of necessity.

1597. Must not the price be determined by two things, the supply and the quality; whether there be a greater quantity or not, if the quality is bad, no one will have them?—They will be saleable at a price, and a comparative value.

1598. What effect, therefore, has the duty either way?—It has the effect of throwing hops upon the trade, which would not be put upon the market at a low price, and pressing the market.

1599. It has been in evidence here, from various witnesses, that the duty has no effect upon the price; is that your opinion?—It has no effect as to raising the price, but it has the effect of lowering the price. Now, for instance, last year, I know that a great number of planters would have kept their produce to a much greater extent if they had not had to pay the duty of 1855. In fact, some of them sold hops at 60 *s.*, though they were selling at a great loss.

1600. Mr. *Beresford Hope.*] In fact, did not the pressure of the duty in 1855 compel them to sell early last year?—Yes; it compelled them to sell more extensively.

1601. Mr. *Ball.*] Do you mean to say, that in order to pay the duty they were obliged to force sales, and that that affected the market?—Yes.

1602. Is it your opinion that the duty does affect the price of hops?—Yes.

1603. It has been given in evidence here, and it has been maintained on cross-examination, that the duty has no effect upon the price of hops; now, I ask you again, whether that is so or not?—It has no effect as to raising the price; but it has the effect of lowering the price, by reason of throwing the hops upon the market at the time when the planters are desirous to hold them back.

1604. Do persons who have to pay the duty sell, in order to obtain money to pay the duty?—Yes; therefore the operation of the duty is not to raise the price, but rather tends to lower the price.

1605. Mr. *Knight.*] Was that the duty in November?—Last season it would have been in November; the second moiety of the duty on the hops of 1855 was paid in November, and the new hops came into market last October, and to the extent it was required to pay the moiety of duty of 1855 in November, those hops were sold.

1606. Mr. *Beresford Hope.*] Taking the case of last year, would not many persons have been glad to have held the hops of 1856, in consequence of the large supply the year before, had they not been compelled to sell last November, in order to meet the demand for the duty the preceding year?—Yes, undoubtedly.

1607. Mr. *Knight.*] Had they not probably sold their crop in 1855, and received the money for it?—Yes.

1608. Had they not therefore received the money out of which to pay that duty?—Yes; but many never got the duty at all in 1855; they sunk all the duty, and so they did in 1856.

1609. When you said that the effect of the duty had been to lower the price, did you refer to the Excise duty?—Yes.

1610. What is your opinion of the Customs duty?—It does not operate at all.

1611. Would you recommend taking off the Excise duty?—Yes.

1612. Do you come here also to recommend taking off the Customs duty?—

It

It is not of the slightest importance; it is of no advantage to the English planter.

1613. Mr. *Locke.*] Did I rightly understand you to say that a loss had been sustained by the planters of between 600,000*l.* and 700,000*l.*?—Yes.

1614. In what years was that?—In 1855 and 1856.

1615. Did not you state that the average price of the crop you sold that year was 50*s.*?—I was speaking of the value of the crop, not of my own hops.

1616. Where did you take that from?—From the mart.

1617. Have you any returns with respect to that?—No; there are no official returns upon the subject.

1618. You mentioned the lump sum of 600,000*l.* or 700,000*l.*; what are the data upon which you arrive at that sum?—One-fourth of the crop of 1855 was sold at 30 *s.* to 50 *s.*, another fourth from 50 *s.* to 70 *s.*, and two-thirds of 1856 from 50 *s.* to 74 *s.* per cwt.

1619. Is the Committee to understand that this is merely a rough statement?—No; it is not a rough statement.

1620. Are not there prices at the market on particular days?—Yes.

1621. Do you go by those?—I form an opinion by going about the market and seeing the different prices. I know the hops sold, and what proportions were sold, and at what different prices.

1622. Did not you take a note of that at the time?—Certainly not; it would be quite impossible.

1623. Is your statement founded upon a vague impression?—It is not vague; it is a matter of knowledge of the trade.

1624. Do not you know that in the Borough the prices of hops are regularly given from day to day?—Yes; that would be good evidence to prove my assertion.

1625. Now, with regard to the result at which you arrived, what was the value of the crop in 1855?—One quarter of it was sold at prices varying from 30*s.* to 50*s.*; another quarter was sold at prices varying from 50*s.* to 70*s.*

1626. Cannot you show the quantity that was sold at intermediate prices?—They would be sold at all prices.

1627. There might be only a few hundredweight sold at 30*s.*, and a large number at 50*s.*; can you state how that was?—I should think that some were sold at every shilling between the prices I have named as being the prices within which the hops were sold.

1628. Was the same quantity sold at each price?—I should say that the average would come out pretty correctly.

1629. What average do you make for the hops which you say were sold from 30*s.* to 50*s.*?—I say that one-half of the crop of 1855 has been sold at an average price, not exceeding 50 *s.*; the price is ranging between 30 *s.* and 70 *s.*

1630. What was the other half of the crop sold for?—It was sold at from 80 *s.* and 90 *s.* up to six guineas.

1631. What would you give as the average price of the other half?—Five guineas.

1632. You stated, with regard to the Weald of Kent and the Sussex hops, that the hops grown in the Weald of Kent were better than those grown in Sussex, though they grow the same description of hops, namely, the grapes, the Colegate's, and the Jones's?—Yes, taking each entire district.

1633. In what respect are the Weald of Kent hops better than the Sussex hops?—In point of quality; the difference is produced by the soil.

1634. Is the difference in the flavour, or in what does it consist?—It would be in the hop altogether. There is certainly a preference given in the market, to the extent of from 3 *s.* to 5 *s.*, to the Weald of Kent hops.

1635. Would that difference be discoverable?—Yes, by men who understand the article.

1636. Would they taste the hops to find the difference?—They would see it by inspection.

1637. *Chairman.*] Cannot you tell the quality of the hop by the smell and the colour?—It can be done.

1638. Sir *John Shelley.*] Do I rightly understand you to say that there are no hops grown in the Weald of Sussex that are as good as the hops grown in the Weald of Kent?—No, certainly not. I have seen hops grown in Sussex that were worth as much as Mid-Kent hops.

Mr. *R. Tooth.*

22 June 1857.

1639. Did they fetch as much in the market?—No.

1640. Do you say that you have seen Weald of Sussex hops grown as good as the hops in the Weald of Kent?—Yes.

1641. But they did not fetch as much in the market?—No, not exactly.

1642. How do you account for the difference in price, when the quality was the same?—Because there has been for a long time established an idea that Kent hops are the best, arising from the fact, that originally the Sussex hops were not as well managed, nor as well grown, and did not fetch as much as those grown in the Weald of Kent.

1643. Practically, do not the buyers go a great deal by the place where the hops are grown?—Yes.

1644. Mr. *John Locke.*] Is not the reason of that, because the Weald of Kent hops are almost universally better than those of Sussex?—There is a distinction between the two.

1645. Are not the Weald of Kent hops almost universally better than the Sussex hops?—Yes, almost universally; I say that there are exceptions.

1646. In answer to a former question, you said that you had known a case where Sussex hops had been as good as the Weald of Kent hops, but had not fetched so large a price; was not that a very peculiar circumstance?—Those are exceptions. The hops were good hops.

1647. Is it not the general rule that the Weald of Kent hops are superior to Sussex hops, and that that difference is on account of the soil?—Yes; there is a slight difference between them, but it is very slight.

1648. Now I ask you whether, that being so, it is not advantageous to the public that these Weald of Kent hops should be marked?—The Weald of Kent planter would be sure to mark his hops.

1649. As a protection to himself, and likewise as a protection to the public?—He would do it for himself.

1650. Whilst he thus does it for himself, does he not at the same time protect the public; because, as you have stated, the hops of the Weald of Kent are almost universally better than those in the Weald of Sussex?—I suppose that the public would see it necessary to judge for themselves, if some were marked and some were not. As I said before, if I were buying, and if a quantity of hops were offered to me with no mark, and a quantity were offered with a mark, I should prefer buying those with the mark.

1651. Do not you think that the marking of these hops is a protection to the public?—I should say that I doubt it with regard to protection; it is seen where the article is grown.

1652. Sir *Edward Dering.*] Would not it be advantageous to a buyer to know whether the hops which he is about to purchase were grown in Kent or in Sussex?—I think it would not really be important in the market; but they might fetch more in consequence.

1653. Would it not be advantageous to the buyer when he goes to market to know whether the hops which he is about to purchase were grown in Kent or in Sussex?—It would be more satisfactory; I cannot see any advantage; I should be more satisfied.

1654. Mr. *John Locke.*] Do you think that being satisfied is no advantage?—I should be satisfied.

1655. Speaking of the article itself, you have said that the soil in Kent bears better than the soil in Sussex, and that almost universally the hops in the one county are better than the hops in the other; now, I ask you whether it is not an advantage to the public, who buy those hops, that there should be a mark placed upon those hops, so that they should know whence they came?—I do not see any advantage in it; there is a satisfaction.

1656. Supposing the buyer is not a good judge of hops, what would be the result?—He would be sure to buy the hops that were marked.

1657. Would not that be an advantage?—To such men it would be an advantage.

1658. Sir *Edward Dering.*] Are the bulk of people good judges of hops?—I should think there are a great many who are not judges of hops.

1659. Mr. *Locke.*] You have stated that many brewers are not judges of hops?—They are not.

1660. Would it not be an advantage to them to have a mark?—They would rely on their merchants.

1661. Supposing

1661. Supposing the merchant were to deceive them, what would they do?—They would not deal with him a second time.

1662. Would not they brew bad beer with the hops that they bought that time?—I cannot say I do not see any increased value given to the hops by marking.

1663. Is it not an advantage to a person to know what he is buying?—Yes; he would know where the hops came from.

1664. Do the planters grow Jones's hops in East Kent as well as in the Weald of Kent?—Yes.

1665. Are the Jones's hops in East Kent a great deal better than those that are grown in the Weald of Kent?—Yes, they are.

1666. Would not everybody know a Jones's hop?—Not everybody.

1667. Will not every judge of hops know it?—Every judge of hops would know it.

1668. Would he know where it was grown?—He would ask the question.

1669. Would he know, of his own knowledge, if he looked at it, where it was grown?—I think that as a rule East Kent hops are distinguishable from hops grown in the Weald of Kent.

1670. Would a man looking at Jones's hops be able to state whether they had been grown in East Kent or in the Weald of Kent?—I think that Jones's hops grown in the East of Kent are quite distinguishable from those grown in the Weald of Kent, as far as my judgment goes.

1671. Do you think that an ordinary individual, who had not so much experience as yourself, could, by looking at an East Kent Jones's hop, almost as a matter of course, be able to distinguish it from a Weald of Kent hop?—I think he could.

1672. Do you think that people in general could do it?—A person not accustomed to looking at samples often would not be able to do it.

1673. Now I ask you whether, under those circumstances, you do not think it is an advantage that there should be a mark upon those hops?—As a grower I do not; it is of no advantage, in point of law; I think that every person who is trying to produce a good article is proud of his mark, and the person who cannot produce a good article is ashamed of it, and he will not put the mark on his pocket.

1674. Do not you think that the person who would be ashamed of his mark would take somebody else's mark, which he was not ashamed of?—The question assumes a case of deception. It is, of course, a possible case.

1675. Does not the law make that an offence?—Yes; but if there were no law, I should bring an action against the man who did that.

1676. Does not the law relieve you from the anxiety of bringing an action, by imposing a penalty upon such a man?—It does.

1677. Do you mean by saying that, it is no advantage in point of law, to imply, that it is an advantage in point of fact?—It is not really an advantage; I apprehend, that, generally, it is not an advantage to impose it as a law.

1678. Speaking of the purchaser as well; do not you think it is an advantage?—No; I do not see any advantage in it, because I think that the mark would be sure to be given in all cases where it was necessary.

1679. Do you mean where it was necessary to the man with a bad mark or the man with a good mark?—I mean to each man's own individual interest.

1680. Would it not be contrary to a man's individual interest, if he had a bad mark to put it on his hops?—Yes; if his hops were bad, he would perhaps not mark them.

1681. Would not it be with the view that they should pass for somebody else's?—I do not think that any one would forge the name of another.

1682. If he is not obliged to put a mark on his pocket, would not there be none?—Just so; but I see no advantage in it.

1683. Mr. *Knight.*] Are the Sussex growers generally proud of the quality of their hops?—I can understand how those that are very proud of the quality that they have, are sadly aggrieved at not having the opportunity of obtaining that which they consider themselves entitled to; but of the mark of Sussex they have no reason to be proud, for the reason that the mark is against the sale.

1684. Sir *John Shelley.*] You have heard a good deal about the protection accorded by affixing a mark to the pockets; do you think that the law ought to interfere to put a bad judge of an article in as good a position in the market

Mr. *R. Tooth.*

22 June 1857.

as a man who thoroughly understands the matter?—I do not think it is necessary.

1685. Do I rightly understand you to say that it was only in an exceptional case that some of the Weald of Sussex hops were as good, if not better, than the Weald of Kent?—I have seen many hops from the Weald of Sussex superior to many from the Weald of Kent, and I have seen many from the Weald of Kent superior to many from Mid-Kent.

1686. You followed that by saying, that although you had seen many Weald of Sussex hops of a better quality than those from the Weald of Kent, yet they did not get so good a price in the market; is not that so?—They do not get so good a price in the market.

1687. Did not you say that that was owing to a feeling in favour of the Kent mark?—Yes.

1688. If the effect of it is to prevent the hop grower who produces a better article than is produced in the Weald of Kent from getting the same price, do not you think that, even if it is a protection to the public, it is an injustice to the planter?—I think it is.

1689. Practically, does not it work an injustice to the Sussex grower?—It does, undoubtedly. There was a period when the hop growers in Sussex could not produce so good an article as those in Kent.

1690. With regard to the advantage to the public, do not you think that the seller of hops should go into the market and use his judgment in buying hops just as with regard to any other article produced?—Yes, undoubtedly.

1691. Do you think that it is necessary for the law of the country to step and to protect him against his own bad judgment?—He should not be protected against his bad judgment.

1692. Mr. *John Packe.*] You know that a person is obliged to put a mark upon gold; do you think that that is no protection to the public?—That is a mark of the intrinsic worth of the gold; but with hops it is not so. The mark does not apply there in the same way.

1693. Have not you stated, that it is almost universally the case that the hop of one county is better than that of the other?—Yes.

1694. Therefore, does not the mark upon the hops show the value, precisely in the same way as the mark upon the gold, although not to so great an extent?—There is a variety of quality in the Weald of Kent, as well as in Sussex. When I speak of the hops of the Weald of Sussex being better than those of the Weald of Kent, I speak of particular cases. As to the hops generally, I am not sure of it.

1695. *Chairman.*] If there were no Government mark, would not the grower who thought his mark good put his mark on?—Yes.

1696. And would not the man who thought his hops not good put no mark upon them?—Yes.

1667. Would not that be at once a disadvantage to him, and an indication that the hops came from an inferior place?—Yes; if there were no mark that would be the case.

1698. Do you think that a man would run the risk of putting a false mark upon his pocket?—No, I should think not.

1699. Sir *Edward Dering.*] Can you give the Committee the relative prices of the various kinds of hops; what would be the difference between the average prices of the grape Jones's, Bolegates, and Goldings?—The difference is 50 per cent. between the grape hops and the Goldings.

1700. Is the grape hop 50 per cent. less in value than the Goldings?—Yes.

1701. Is not the Golding the hop which is grown generally in Mid and East Kent?—Yes.

1702. Is not the grape hop generally grown in the Weald of Kent and Sussex?—Yes.

1703. *Chairman.*] You have told us that, in 1855 and 1856, one-half of the crop in one year, and two-thirds in the other, were sold at a loss?—Yes.

1704. Will you tell us what sort of hops these were that were sold at a loss?—They were principally from the Weald of Kent and Sussex; and some from Mid-Kent, as well as East Kent.

1705. Were not the Weald of Kent and Sussex the chief losers in that case?—Principally; Mid-Kent and East Kent also suffered some loss.

1706. Was not the duty paid upon the quantity?—Yes.

1707. Therefore,

1707. Therefore, that portion of the planters not only lost the value of the duty upon the hops, but they sold their hops at a less price than the others, and the duty was heaviest upon that portion of the crop, was not that so?—Yes.

1708. Is not the Excise duty a loss to the grower upon those districts in an abundant year?—Yes.

1709. Does he gain correspondingly by the Customs duty in a scarce year?—No.

1710. Mr. *Knight.*] How long have you been engaged in growing hops?—Seven years.

1711. Are you still growing hops?—Yes.

1712. Have you lost money by them?—I have lost money by them.

1713. Have you made any calculation as to the price at which hops could be profitably grown in England?—Sixty shillings, without the Excise duty, in large crops.

1714. Do you think that if there were no Excise duty you could get a profit by them?—Yes.

1715. What is your reason for that?—Because I think that we should get the same prices as we had before, if the supply remained the same.

1716. Would you have put the whole duty into your pocket?—Yes; or rather we should not have lost it. I am speaking correctly with regard to the moiety of the crop in 1855, and two-thirds of that in 1856, of the planters, when I say that they lost all the duty upon those portions of the crop; and I believe the prices would have been precisely the same if there had been no duty at all. With respect to the Customs duty being taken off, I see no objection whatever to free trade. It exists now, and ever since I have been in the foreign trade, as far as the foreign merchant has been concerned, and we have had opportunities of buying English and foreign hops free of duty; they go out to the Australian colonies and Van Diemen's Land, and there they are side by side with American hops and Belgian hops, and the inferior English hops command the highest price in all markets. It is only when there is an extreme scarcity in the colonies that foreign hops are saleable and useable.

1717. I think you said that the growers of the coarser hops did not get back the duty in the sales of their hops in 1855 and 1856?—They did not in those two years.

1718. But that the growers of the fine hops did?—Yes.

1719. How do you account for that?—Because the grower of the fine hop has a higher price. There is a loss of the Excise duty on the inferior hops in other years also; for although the cost of production for these two years has only been 2 *l.* a cwt. a year, with half the crop it is 4 *l.* a cwt., and with a quarter crop it is 8 *l.*; therefore it is necessary to get 6 *l.*, 8 *l.*, and 10 *l.* a cwt. in those years, and those that have sold at less, have sold at a loss of the Excise duty.

1720. What have been the average productions of the fine hops as compared with coarse hops during these last two years?—I should think 5 cwt. less per acre. If you take the larger produce of the Weald of Kent and the Golding produce in the Mid-Kent, I think the supply of the Golding hops will not be so much as the other by 5 cwt.; for instance, if you got 16 cwt. per acre in the Weald of Kent, I should think 11 cwt. a good deal for the Golding hop.

1721. Does not the person who gets the largest crop pay the most duty?—Yes; and he receives the smallest price.

1722. If he grows double as much, does not he get an equal quantity per acre?—I do not comprehend this question.

1723. Is not the pressure therefore according to the price, and not according to quantity?—By both.

1724. Sir *Edward Dering.*] You have stated that the difference of the value between the Golding hop and the grape hop was 50 per cent.?—Yes.

1725. Is the Committee to understand, that supposing the Golding hop was worth 100 *s.* a cwt., the grape hop would be worth 50 *s.*?—No; that would be a hundred per cent. difference. If the price of the Weald of Kent hop was 72 *s.* or 74 *s.*, you could afford to give 5 *l.* for East Kent Goldings; and supposing that the grape hop fetched 4 *l.* from Sussex, or the Weald of Kent, the Golding East Kent best hops would fetch 6 *l.*

1726. That is to say, the Golding hops are worth 50 per cent. more than the grape hops?—Yes.

Mr. *R. Tooth.*

22 June 1857.

1727. Mr. *Wykeham Martin.*] You said, as to the effect of the Excise duty upon the price, that the Excise duty had an effect in lowering the price in particular times when the market was glutted, on account of the planters having to pay the duty?—Yes.

1728. Does not that arise from want of sufficient capital on the part of the grower?—Yes, he is compelled to sell.

1729. Is not that, therefore, only operative upon the inferior class of growers?—Yes.

1730. Mr. *Knight.*] You said that the English hops sold at more money than the foreign hops?—Yes, in foreign parts.

1731. Do you sell by mark?—I do not. The process that they undergo prior to being shipped obliterates the mark. Upon the arrival of a vessel they are examined without any marks at all.

1732. Are not you a large brewer in Australia?—My sons are brewers there; and to show how much the British hops are esteemed, as compared with foreign hops, I may say that during the time I was making shipments for various houses I had one letter severely correcting me for not executing an order when they were so high here that I thought I was not justified in executing the order; and I got an answer to say that unless I purchased English hops, without reference to price, such was the necessity for them, that they should have to send their orders elsewhere; this I mention to show that they could not introduce the quality of flavour from foreign hops that was necessary for the trade; they must have English at any cost.

1733. *Chairman.*] Do you believe that the Customs duty has the effect of raising the price of hops?—I do not think that it has anything to do with the price of hops. I think the fear has more to do with it than any reality. I think if free trade were to commence to-morrow, there would be a rise upon the measure being tested; it would create, no doubt, at first, a panic. Indeed I have heard some planters say that if free trade were created they would grub up their hops. I think there would no doubt be a panic for a time.

1734. Would you say that if the Customs duty does not raise the price it is no protection to our home trade?—I never saw that foreign hops could displace English hops in a foreign market.

1735. We have been told by one witness that the price of foreign hops was lower when the Customs duty was higher than it is at present: does that tally with your experience?—That would be governed by the price of English hops; you might have the price of hops much higher than it is now, or lower. I do not think that that is evidence at all upon the question.

1736. Would not that go to strengthen what you said before, namely, that the Customs duty does not affect the price of the hops in the English market?—Yes, that is my opinion, from the practical knowledge that I have had for 23 years, that it does not affect the price of hops in other markets.

1737. When the Customs duty was suspended in 1854, had it any effect upon the prices?—The prices of English hops were then very high. I think it had no effect at all then; all the hops that could be brought in were brought in.

1738. Then your conclusion is, that the Excise duty is a loss upon the English grower, and that the Customs duty is no protection?—Just so. I think that the foreign hops, with the exception of the Bavarian hops, could never displace the English hops in this market. I do not believe that any supply from America or from Belgium would displace the Weald of Kent or the Sussex hops.

1739. If there were free trade, would not the competition lie between the Bavarian and the finest quality of hops?—That would be confined to the East Kent and the Mid-Kent growers; there would be no competition between the Weald of Kent and the Sussex growers, and the Bavarians. There would be the same distinction between Bavarians and the Weald of Kent as there is between Mid-Kent and the Weald of Kent. The two qualities competing will be Bavarians and Mid and East Kent.

1740. Sir *John Shelley.*] Would not the panic which you say would be created by the revival of the duty be a temporary thing?—I should think it would take three or four years to get right again.

1741. When free trade in corn took place, is it within your recollection that there was the same kind of panic with regard to corn?—Yes.

1742. Did

1742. Did not that right itself in a short time?—Yes.

1743. Would not the same effect be produced in reference to hops?—Yes, but it would be attended with much sacrifice to the planters.

1744. Would not the man who got foolishly frightened lose his money?—Exactly so.

1745. *Chairman.*] Are foreign hops as liable to blight as English hops?—I think not.

1746. Have you any knowledge of the cultivation of Belgian and Bavarian hops?—No; but Americans have failed to my knowledge.

1747. What do you go by when you say that you believe they are not liable to blight?—We hear less of failures.

1748. Are the variations in the price from year to year in Bavarian hops greater or less than the variations in England?—The variations in England are the greater.

1749. Is that in any degree to be attributed to the duty in England?—I think it is from the fluctuations in the crops.

1750. You say that the duty forces sales at a certain time; would not that affect the price?—Yes; to some extent it will lessen the price for a short time, perhaps for some three, four, or five months.

1751. Does not the Excise duty in England affect the prices in England?—Yes.

1752. Does not it tend to make the prices lower at certain seasons?—Yes.

1753. Do you think that the less variations that take place from year to year in the prices of Bavarian hops are to be attributed to the hops being of a steadier nature, or to the circumstance of there being no duty in Bavaria?—I cannot answer the question as to the fact of there being no duty having any effect, but I think they are more certain in their crops.

1754. It is naturally a more certain crop?—Yes.

1755. Is that the case with the Belgian hops?—It is the case with the Belgian hops too.

1756. In the same manner?—I think so.

1757. The Belgian hop is an inferior sort of hop, is not it?—Yes.

1758. Do you attribute that to the soil?—To soil and climate; and it is also the case with the American hops; they are grown too rank; they are very powerful in their flavour, and very bitter; they are naturally grown of a certain quality, which cannot be changed by reason of the soil and climate being the only cause of it.

1759. Do you think that if the Belgian hops were cured and prepared in the same manner as the English they would not be equally good?—No; they would still be the same.

1760. Are you comparing the Belgian with the Weald of Kent and Sussex hops?—Yes. I apprehend that if you were to introduce a foreign supply of American and Belgian hops into this market at 40 *s.*, they would be disregarded as compared with English hops at 60 *s.*

1761. Is that the case at this moment in the Australian market?—It is.

1762. With respect to the American hops, what kind of hops are they?—There are inferior qualities. I have seen only one sample in my life that would be usable as compared with the Weald of Kent or the Sussex hops as to mildness of flavour. I have seen one sample that surprised me; I have never seen any other.

1763. What price was that brought in at?—I do not know. They were imported for Van Diemen's Land by the merchant, for the purpose of exporting them from this country; I happened to be in his office, and he showed them to me. It is my opinion that they were superior to anything I have seen.

1764. Have you not imported hops from America?—No.

1765. You do not know what the cost of freight is?—No.

1766. On the whole, do you think that if the Excise and Customs duty were abolished, and free trade in hops were established, the English hops would sell for less than the foreign?—I think that after the business had been fairly tested, the English hops would command such a difference that they would have a better price to the exclusion of foreign.

1767. Do you think that the only hop that would come in to compete with them would be some superior species of Bavarian?—Yes; and those would only compete with the Mid and East Kents.

Mr. *R. Tooth.*

22 June 1857.

1768. This kind of hop that is the best at this moment, would be the hop that would be exposed to competition?—Yes, it would be the only hop under free trade.

1769. Are the high-priced Bavarian hops the same kind of hops as the Kent Golding?—Yes; they are remarkably fine in texture and quality.

1770. Are not they intensely bitter?—Yes; still they are a mild bitter.

1771. Is not it a mild bitter, but yet a strong bitter?—Yes; they are very suitable for the East India ales, or rather they would be if they were properly cured, but I fear that thus far these foreign hops have not been cured sufficiently; but it must be confessed, in speaking of the hop itself, that it is undoubtedly a superior article to the East Kent hop.

1772. Is it superior in point of its bitter?—Yes, and its quality altogether.

1773. Mr. *Beresford Hope.*] Is not it a distinct variety of hop?—Yes.

1774. Would you refer it to any of the English varieties?—It would be distinct altogether.

1775. Sir *John Shelley.*] Is the Committee to understand from your evidence, that the effect of free trade would be favourable to the grower of all English hops, with the exception of the very best quality of hops grown in the peculiarly favoured parts of Kent?—Yes, precisely so; and most detrimental if the Excise duty continue, because then a large part of the hop plantation must go down, and it will be sure to bring a short supply, and then that short supply would fall back upon the brewers; they would have to pay enormous prices.

1776. Mr. *Wykeham Martin.*] Have you any idea of what power there is of augmenting the supply in Bavaria?—I have had some talk with persons who know that country; they say that any extensive increase in plantation is not practicable, owing to the small allotments of land, and the nature of the holdings.

1777. *Chairman.*] What price do the best Bavarians sell at?—There was a parcel sold at seven guineas per cent. a short time since.

1778. Is that the common price at which they are sold?—I do not know whether it is a common price; and when I asked whether it was not profitable to the Bavarians to send hops here, the answer was, "No."

1779. Mr. *W. Martin.*] Is there any way of knowing what the present price of hops at Bavaria is?—Yes. I have heard that the market price of Bavarian hops is 5*l.* 5*s.*

1780. Mr. *Knight.*] Do you know the Peauerin hop in Belgium?—The Belgians generally is a large coarse hop.

1781. Is not that equal in quality to Mid-Kent hops for brewing purposes?—It is not equal, because the flavour is objectionable.

1782. If it is stated that it is equal, is it a mistake?—Yes, in my opinion and judgment.

1783. I think you said that the reason why hops had been so low for the last two or three years was because of this over-production?—Yes.

1784. Still you think that if more foreign hops were forced into the market it would not still further reduce the price?—My conviction is that they cannot afford to send the hops here. I think it cannot pay them, because I think the Sussex production, and the Weald of Kent production, would entirely annihilate the foreign hops as soon as the trial was made.

1785. With a 2*l.* 5*s.* duty, cannot they afford to send them here in considerable quantities?—They cannot afford to send them; they send them at a loss.

1786. Have not a great many been sent in?—Yes; they have been sent in when the hops were dear.

1787. Do you think that there has been a loss upon them since the high prices?—Yes.

1788. Supposing a good many of those Bavarian hops came in, would not they force the inferior quality of hops out of the market; would not people prefer, if there were no duty, to buy the Bavarian hops in preference to the Sussex hops?—I have shown in my evidence that the Mid and East Kent hops give a good profit at five guineas a hundredweight; now in Bavaria they have had five guineas a hundredweight for 20 years, and they can scarcely sell their hops there at that price.

1789. Are

1789. Are you aware of the price of labour in Bavaria at all?—No; I only reason in this way, that if they have not thought it desirable to increase their plantation at five guineas for the last 20 years, they would not consider it advisable to increase their plantation for the next 20 years, and if people can grow good hops at five guineas here there is no chance for them.

1790. What returns are those from which you judge that the hops have been five guineas in Bavaria for this last 20 years?—Mr. Frewen circulated the official return from the Government authorities there.

1791. I think you stated that owing to the subdivision of land the production could not be increased?—It could not without some considerable difficulty. I understand the people of Bavaria are at present holding land in very small quantities; and in order to compete with this country they must erect oast houses, and must cure their hops better than they have done; and I do not think, with the small quantities of land they individually hold, that they would be able to enter into an extensive plantation of hops with all the difficulties besetting them; they would want a higher expenditure in labour and outlay in buildings, and I think it is not likely that they would undertake a competition that would increase their plantations under those several difficulties.

1792. Sir *John Shelley.*] Do you think the oast house would be as expensive a building as it is with us?—Yes; and that is one of the very great items of expense in the cultivation of this country.

1793. *Chairman.*] Did I rightly understand you to say that you have a return showing the prices in Bavaria for the last 20 years?—Yes; I received an official account circulated by Mr. Frewen.

1794. Can you furnish the Committee with such an account?—I think I have it; but Mr. Frewen would be a good medium through whom to get it; I cannot say I am prepared to give a copy, but I believe I have the account.

1795. Mr. *Locke.*] I think you stated that you doubted whether, if the Customs duty were taken off upon the Belgian hop, they could be imported with profit into this country?—I go so far as to say that I do not believe that either the Belgian hops or the American hops can compete with the Weald of Kent and Sussex hops.

1796. Do I understand you to say that, supposing this duty were taken off, the Belgian hops could not be brought over to this country to be sold at a profit as against Weald of Kent and Sussex hops?—I should say not.

1797. In the year 1856, as I understand, hops were very cheap in this country, were they not?—Yes.

1798. What was the price?—From 30 *s.* to 6 *l.* 6 *s.* in 1855 and 1856.

1799. Are you aware that last year, from the 1st of January to the 30th of June, there were 3,259 cwt. of hops imported from Belgium into this country?—Yes; it is a mere bagatelle; they must be sent here as an experiment; there is no proof that they have been sent here at a profit; it is very natural that they should send hops in 1855, when they had a great profit in 1854.

1800. It appears by a return laid before the House of Commons, 12th May 1857, that the total number of hundredweight of foreign hops imported into England from the 1st of January to the 30th of June 1856 was 7,791 cwt., and from the 1st of July to the 31st of December 1856, 2,619 cwt., making altogether 10,610 cwt.; do you consider that those were sold at a profit for home consumption?—I consider that they were sold at a loss.

1801. What loss do you consider?—I cannot say how much.

1802. Do you consider that they were sold at a loss of as much as 45 *s.*?—There may have been a small quantity at loss; it might be that they selected a particular quality.

1803. Where do those hops which are returned as coming from the Hanseatic Towns come from?—I cannot answer that question.

1804. Mr. *Knight.*] At what price per hundredweight do you think the Weald of Kent and Sussex hops can be brought into the market to compete with foreign hops without the duty?—At 60 *s.*, with a profit, without the duty, with hops like the two last years, which is a much higher price than we have had; we have had a less price with the duty

1805. What has been the average price for the last 10 years of our hops?—The variation of hops has been great. In 1854 we had the price at 15 *l.*

1806. The price that you have given us as the average for the whole crop for

Mr. R. Tooth.

22 June 1857.

two years, 1855 and 1856, was five guineas for one crop, and 2 *l.* 16 *s.* for the other?—Yes; for the several portions which I have stated.

1807. What is the average of the whole crop for the two years?—It would be rather difficult to say, on account of the different proportions involved in the calculation.

1808. Supposing it to be 3 *l.* 17 *s.* 6 *d.*, whereas you have told us that a good crop can be produced at 3 *l.*, how can there be a loss, if the average of the whole crop is 3 *l.* 17 *s.* 6 *d.*, which, without the duty, would be 3 *l.*?—I have already stated that, upon one-half of the crop of 1855, and two-thirds of the crop of 1856, there has been a loss of between 600,000 *l.* and 700,000 *l.*, the Excise duty; and upon the one moiety of 1855 and one-third of 1856 there has been a profit. I do not mean to say that all sorts of plantations are alike. I mean to say, that while part has been suffering, part has been in prosperity.

1809. Has there not been a profit upon the whole hop crop, although certain hops have lost?—I do not say that. I say if the hop interest had been one interest, and the account had been kept of all the expenditure, and of all the produce, it would have been bankrupt.

1810. If the hops can be brought into the market for 3 *l.*, and if they sell for more than 3 *l.* upon an average, is not it clear that there cannot have been a general loss upon the whole trade, although there may have been loss to some individual persons?—The loss I have stated referred to a separate class; the comparison made in the question refers to the whole of the planters in the country. The growers of the inferior qualities of hops have not realised the cost of production. I have shown that the cost of the Weald of Kent and Sussex hops was 4 *l.* per cwt., and I have shown that they have only realised 2 *l.* 16 *s.*, therefore they have been selling at a loss of 24 *s.* per cwt., all the Excise duty and money besides.

1811. Do you state that the stock which was of inferior quality remained in hand?—Yes.

1812. Did it remain in the farmers' hands or the dealers' hands?—Not in the farmers' hands generally; generally in the dealers' hands.

1813. *Chairman.*] You have been lately a brewer, I believe?—Yes; I have conducted a brewery about 10 years.

1814. Does the price of hops affect the price of beer?—No.

1815. The small outlay for hops, compared with the outlay for malt and the expenditure in manufacturing beer, is imperceptible?—Not material.

1816. Did that affect the price of beer in 1850, when it was very high?—There were instances, I believe, that it did, but it was not maintained.

1817. Did the brewer lower the quality at all in consequence?—There never were greater complaints of the quality of beer in England than during that year. I attribute that entirely to the use of foreign hops, and probably to a small quantity of English hops then used.

1818. Do any brewers use substitutes for hops?—I never knew it; I have heard of it, but in all my experience and all my transactions with the brewers, and when connected with a brewery, I never knew of an instance in my life.

1819. Has the taste for highly-hopped beer been on the increase of late years?—Yes.

1820. And the export of beer increases?—Yes.

1821. Beer which is for exportation is highly hopped, is not it?—Yes.

1822. In order to make it keep?—Yes, and also to suit the palate of the consumers.

1823. Can you tell whether the consumption of hops has increased in proportion to that consumption which would be necessary?—We have found that the consumption increases, and has increased for the last 10 years, as is shown by the fact that the sales are always greater for best hops than what we anticipated, particularly commencing with the year 1840, and going up to the year 1850.

1824. Sir *John Shelley.*] What class of hops are mostly used in beer for export?—The best.

1825. The very best?—Yes; and large quantities are used; whilst 8 lbs. and 10 lbs. a quarter are used for common beer, to the extent of 16 lbs. and 18 lbs. a quarter are used for the best beer.

1826. *Chairman.*]

1826. *Chairman.*] Is there not some difference in the values of the beer?—Yes.

1827. Will you say that you never knew an instance of the use of a substitute?—I know no instance which has been made public.

1828. Is it generally supposed that substitutes are used when hops are dear?—It is generally supposed that in very dear years there are substitutes, although they are not traceable.

1829. What is multum, or hard mixture?—I do not know; I have known a great demand for gentian.

1830. Have you ever heard of quassia?—It has not been traceable to brewers; no one can tell where it goes to.

1831. Can you speak with reference to the false packing that goes on with hops?—Yes.

1832. Is it carried on to any great extent?—Not lately; it used to be; there are a few men now inclined to it.

1833. I think you have told us that the cultivation of hops is an expensive cultivation?—Yes.

1834. And the produce equally uncertain?—Yes.

1835. So that growing hops is often naturally an unremunerative business?—Yes.

1836. And the duty increases the risks of the growth?—Yes.

1837. The duty makes the losses and gains greater and less than they naturally would be?—It makes the losses greater, at all events.

1838. Does it greatly tend to encourage gambling?—I can hardly say. If the duty falls to any extent, at all events the prices rise.

1839. The risks of the business being so very great, are the growers driven to bet by way of guarding against the risk of the crop?—Very few indeed; I think the betting may be considered almost confined to the trade.

1840. Sir *John Shelley.*] Do you mean the factors?—Yes, the factors and some merchants.

1841. *Chairman.*] Are there not regular tables furnished of the betting?—Not regular tables. The opinion of the coming crop is often very essential; that is to say, it is very valuable to know what is the position of the plantation, and you cannot trace a correct account of that by mere conversation; but when a person proposes to bet 500 guineas in favour of a certain amount of duty, it is evident that he is sincere in what he says. Bets often apprise us in that way of the opinions respecting the coming crop.

1842. Sir *Edward Dering.*] Practically, then, it is rather an advantage to the public at large that there should be betting, because it shows the prospect of the coming crop?—I think it must be considered a good guide for the coming crop.

1843. Consequently, it is practically an advantage to the public at large, to ascertain the amount of the coming crop by means of betting?—Yes, it is; as far as information at all events goes. Whether the public act upon that information of course is another thing.

1844. Mr. *W. Martin.*] What is the general margin between the highest bets and the lowest bets?—I heard of a bet being made, a few days ago, of 600 guineas to one, that the duty does not exceed 50,000 *l.* this year; I heard of one individual gaining 32,000 *l.* in 1854.

1845. Can you inform the Committee how near an approximation the public get by means of those bets?—They get the public opinion of the trade.

1846. Within what limits is it?—We often see when the betting rules within a certain sum in the month of August, the result is very close to it indeed. It would vary from this time to August, because the plant is under various changes.

1847. What would at this time be the average difference between the highest and the lowest bets?—Now the duty is ruling about 120,000 *l.* and 125,000 *l.* It may go up to 170,000 *l.* if appearances improve; on the contrary, if they are less favourable, it will fall to 80,000 *l.* long before that time.

1848. How long then will this betting range so high as 120,000 *l.*?—I have known years when the duty started at 110,000 *l.*, and the crop actually produced 240,000 *l.* duty.

1849. How near an approximation can you get from betting?—The benefit arising from betting is simply a nearly correct account of the state of the plantation for the time being.

Mr. *R. Tooth.*

22 June 1857.

1850. Sir *John Shelley.*] Do you consider that gambling is a course that can be defended?—No; I was myself a better up to the year 1840, but I have ceased to be a better, for the reason that I considered it wrong.

1851. You would not state to this Committee, that supposing an advantage to accrue to the public, as you imagine that it does, gambling should be encouraged by Act of Parliament?—No, I condemn gambling of all sorts. These statements are merely given, to show the means the public have of ascertaining the coming crop by reason of the betting.

1852. What do you mean by "the public"?—What I mean are the consumers of the hops. It is natural for every dealer or brewer to inquire about the prospect of the coming crop.

1853. "The public" are then, in fact, the brewer and the dealer in beer?—Yes; the consumers.

1854. In what way is the consumer benefited by knowing what is the price of hops?—He may take advantage of the low price by buying a quantity of hops. I am speaking of the consumer of hops, not the consumer of beer.

1855. When you speak then of the consumer of hops, do not you mean the brewer and the dealer in the article?—Yes.

1856. When you speak of "the public," you mean the public engaged in the trade?—Yes.

1857. Do you think that this gambling is of such use that, although it is indefensible, yet as good comes of it, you would not like to see any alteration which would do away with it?—I do not promote such a thing. I do not advocate such a thing. I merely say, that the result of the betting is, that it gives a nearly correct account of the prospect of the coming crop from time to time.

1858. Who are the persons that benefit by knowing anything of the coming crop?—The brewers, the merchants, and the consumers of the hops.

1859. Mr. *W. Martin.*] The persons who have the hops to sell, as well as those who have to buy?—Yes.

1860. Do you think that the grower of the hops is benefited by knowing the duty, when the duty is published?—I think that in the case of large crops they are injured, but that in the case of small crops they are benefited, because it depresses the price if the duty is large, but in other cases, where the crop is small, it gives an idea that there will not be hops enough for the consumption.

1861. Sir *Edward Dering.*] I understand you to say, that you do not defend the practice of gambling in hops, any more than gambling in any other thing; but still you say, that there is an incidental advantage accruing to the public by means of this betting?—Yes; it gives a correct opinion.

1862. You do not consider that there is any greater immorality in men backing their judgment as to what the growth of hops is likely to be, than as to whether a certain horse is to win a horse-race?—I think it is much the same; it is a system of gambling.

1863. The bet is this, that they back their judgment against their neighbour's, as to what the amount of the crops will be?—Yes.

1864. And the only test by which you can tell the amount of the crop is the duty?—Yes, it is the most correct test; but, notwithstanding it affords a benefit, I say the practice of betting myself is an immoral thing.

1865. *Chairman.*] You merely stated to the Committee that there was an important advantage incidentaly derived by the public in consequence of it?—Yes.

1866. Is the indication which is given by the betting of the expected value of the crop sufficiently certain to be worth anything to the trade?—Yes; if it were possible to run the duty to 80,000 *l.*, you would have the hops get up to-morrow; but you cannot do it.

1867. May it not be used as an instrument by speculative people to raise their low prices?—It would be very difficult, because if a man is betting against the duty to-day, and it were inconsistent with the appearance of the plantation, he would have hosts of men coming to-morrow to make more bets.

1868. Is not the hop plant very variable in its growth?—Yes.

1869. And liable to blight at certain periods?—It is liable to diseases from the month of April to October.

1870. Is it not impossible to know what the duty will be?—I think 80,000 *l.* is as likely as 120,000 *l.* or 140,000 *l.*

1871. Must

1871. Must not the test of betting be a very uncertain one?—Yes, except in its altering from day to day; the betting would alter according to appearances. I have no doubt that eventually it will be very close this year.

1872. When is St. James's day?—It is not near.

1873. Up to what period is it uncertain what the crop of hops may be?—I should think you must enter the month of August before you can be quite certain.

1874. Mr. *Locke.*] Is not the 12th of August a particular day among hop growers?—It is about the time at which the hops may be more correctly calculated upon. I have known them rise 100 per cent. after the 10th of August.

1875. Is not it a common saying, that "Till Hawkhurst fair has come and gone, there may be hops or there may be none"?—I remember that.

1876. Is not that a particular day for betting?—It is not a particular day for betting.

1877. Do not the factors and the growers meet there?—Yes.

1878. Is not it a period at which a pretty good opinion may be formed of the crop?—Yes.

1879. Is not the betting an index at that time as to what the crop will be?—Yes; the bets are then generally correct, according to the appearance of the crop, but I remember a particular year, when the duty was rated at 70,000 *l.* on the 10th of August, it increased to 174,000 *l.*

1880. Mr. *Knight.*] Is not the betting merely an amusement, like playing at whist, or anything else?—No, I do not say that.

1881. Is it made a matter of business?—I think some men make it an important feature in their operations, to protect them against loss if the crop should be good, and to assist them in the case of its failure. In either way he tries to meet the risks of the crop.

1882. Sir *John Shelley.*] Have you as a merchant ever been in the habit, to any extent, of buying hops direct from the grower?—At one time that was my principal business. During the last 20 years of my operations I have dealt in the Borough.

1883. Have you ever advanced money to the grower upon his stock to enable him to pay the hop duty?—Yes.

1884. Have they been in the habit of borrowing money of you?—It was quite the practice at one time for the country merchant to advance money, and now it is the practice for the London factor to do so.

1885. I suppose you charge interest for that?—We expect to have the preference in the purchase as country merchants, and the factors expect to have the crops consigned to them for sale, and they get their commission. I do not know of any other advantage besides the interest of the money.

1886. They charge interest on the money and they have the first call on the crop?—The factors expect to have them consigned to them for sale, by which they get the usual commission.

1887. I understand you to say you bought hops from the grower?—Yes, but I have not acted as a factor at all; my business has been that of a merchant.

1888. I understand you to say, that you have been in the habit of buying, at those times, hops of the grower?—Yes.

1889. And that you have been in the habit of advancing money to the hop-grower on the crop?—Yes.

1890. You charge him interest, I presume, upon the loan?—Yes.

1891. And you have also a first call upon the crop?—Yes; we expect to purchase the hops, at any rate, upon as good terms as we can of any other planter; probably at 2 *s.* less, or some trifling allowance.

1892. At what time usually is it, that you find applications for a loan?—You may trace it to commence very much with the payment of the duty.

1893. Does that apply to any particular district of the country more than another?—I think more to Sussex and the Weald of Kent than anywhere else, as far as my knowledge goes; but I think the factors in the trade will speak more correctly to that.

1894. I suppose that the impression upon your mind is, that the hop-growers in the Weald of Sussex and the Weald of Kent are men who, when the time comes for the duty, are not so flush of money, but that they go and get a loan?—They are not so flush of money for the reason that they lose more frequently by their crops.

Mr. *R. Tooth.*

22 June 1857.

1895. Do they lose more frequently by their hops in Sussex and the Weald of Kent than in other parts of the country?—Yes.

1896. Do you attribute that to the pressure created at a particular time by the demand for the duty?—Yes.

1897. Mr. *Knight.*] Is not it also because the hops are of an inferior quality?—Yes.

1898. Sir *Edward Dering.*] Have they lessened the plantation?—Yes, the plantation has decreased between 3,000 and 4,000 acres.

1899. Within the last seven years is the number of acres less?—The number of acres has both increased and decreased; they are now decreasing; there was a rapid decrease up to 1852. The blights of 1853 and 1854 induced the planters to increase the plantation, but the crops of 1855 and 1856 induced them to lower it again.

1900. Mr. *Knight.*] Suppose no money is lent on the hops, would not they go to the factors?—Yes, I suppose that nine out of ten of them would; there are some sold in the country.

1901. Does not the grower wish to hold his crop on, in order to take advantage of the price rising?—That may be one reason; but another one is, that he would rather wait for the ensuing crop, when prices are below cost.

1902. But still it is with the view of holding the crop on, and because he does not wish to sell at a loss price?—He borrows money in that case upon the last crop, and in another he would borrow money upon the coming crop, for the purpose of paying a moiety of the duty upon the last crop.

1903. Mr. *Brand.*] Have applications for loans on the part of the hop growers increased lately?—I should think there never was such a pressure as at this moment; I do not see how the planters can pay the duty upon the last crop in July unless it is borrowed, speaking generally; of course there are exceptions.

1904. Do I rightly understand you to say, that it is only of late years that you have adopted the practice of advancing money?—No, I said that it was some years since I was a country merchant, and that at that time I was in the habit of lending money upon the crop, expecting to have the offer of purchasing the hops upon satisfactory terms; but now the business is changed by the planter consigning direct to the factors, who have the hops to sell, for which they get the usual commission. I do not think there is any difference made between those persons who borrow money and those who do not.

1905. What security did you take when you advanced money to the planter?—None at all; if a man had credit I used to lend; if he had not any credit I did not lend at all.

1906. *Chairman.*] As matters stand now, does not the hop grower run a chance of losing not only the expenses of cultivation, but the amount of the duty to the Government besides?—I cannot say that he loses the expenses of cultivation unless a small portion, but certainly the Excise duty.

1907. He runs the chance of getting an unremunerative crop?—He runs the chance of getting an unremunerative crop, but he would get some return to pay some of his expenses.

1908. And he would lose the amount of the Excise duty?—That is quite clear, as I have stated.

1909. Must not that tend to render the business fit only for men of considerable capital?—It is not fit for them in the case I have mentioned.

1910. Does not it militate against the small planters, compared with the man of large capital?—It is quite as bad for one as for the other.

1911. May not the man of large holding fall back upon his other crops?—Yes.

1912. Mr. *Knight.*] Do you consider it an advantage or a disadvantage to the growers, that the factors are willing to lend them money upon their crops?—I think it is a great convenience to the planter. I think it is injurious in other respects, because he is induced to cultivate more extensively.

1913. Do not you think that, in holding his crop, which is unremunerative, and brings in a loss, he is very much injured; whereas if the breadth of cultivation was confined to his actual capital, he would be more safe as a man of business?—Yes.

1914. Mr. *Locke.*] Is not it the fact with respect to everything, that where a man has capital and credit he speculates more?—It is the spirit of the age.

1915. Does

1915. Does not it apply to other things besides hops?—Yes. Mr. *R. Tooth.*

1916. Sir *John Shelley.*] But in a peculiar cultivation, like hops, does not it apply still more strongly?—It is more dangerous there. 22 June 1857.

1917. Mr. *Locke.*] Are not the chances greater of profit, if he takes advantage of the trade?—I have shown that, as a planter, I have only had one good year in seven.

1918. Does the one year in seven answer your purpose?—It does for that year.

1919. Does not it answer your purpose altogether?—No.

1920. Why have you continued it?—I have not continued it.

1921. Have you left off the cultivation?—I have grubbed one-fourth of my plantation at the end of 1855, and I grubbed another fourth last year.

1922. How long did you carry it on?—Seven years. When I first began as a grower it was the sixth year of some of my plantation.

1923. Have not you soon formed your opinion of it?—I did not form my opinion suddenly. I never had much opinion with regard to hop-growing, but I thought I would try it. I conducted my father's accounts for seven years in my early life, and I found that he was a loser, instead of a gainer by hops.

1924. Was he a loser in the long-run?—Yes.

1925. *Chairman.*] I think I understood you to say that you had grubbed some of your hops?—I grubbed one-fourth of my hops at the close of 1855, and at the close of 1856 I grubbed some part also, 23 or 24 acres.

1926. In the event of free trade in hops, would you extend your cultivation?—Certainly I should not grub.

1927. Mr. *Brand.*] What would be the effect generally of a repeal of the Customs and Excise duties upon the cultivation of hops?—To extend the cultivation of hops is a very great undertaking; it cost 50 *l.* per acre, including the rearing of the plant, and additional room for drying and for poles; a person cannot increase his plantation without increasing his capital 50 *l.* per acre, taking into consideration the rearing of the plant, the poles, and the accommodation of oast rooms.

1928. Have you formed any opinion as to whether the hop cultivation is likely to be increased or not in that case?—If there were to be an immediate repeal of all the duties many persons would be frightened, and go out of it; I think that the prosperity in three years would be much greater than it is now; there is no circumstance, in my opinion, that would apply detrimentally under free trade as under the protective system.

1929. Do I rightly understand you to say that in the first instance there would be a reduction in the cultivation of hops, and that afterwards it would be increased?—I think that many persons would be alarmed in the first instance; I think they would fear that the foreign hops would swamp the English market; but I have enjoyed free trade for 30 years, and I have bought English and foreign hops free of duty, and I succeed with English hops in the foreign market; but I cannot succeed with foreign hops in the foreign market, and I conclude that we shall have the same results here.

Mr. *Lawrence Reeve*, called in; and further Examined.

1930. *Chairman.*] I UNDERSTAND there are one or two points in your evidence that you were good enough to give us the other day which you wish to explain; first with reference to the expenses of drainage?—I spoke from my recollection, putting it together as well as I could at the moment, and I think it was rather too much. I should say from 5 *l.* to 6 *l.*, instead of from 7 *l* to 8 *l.* Mr. *L. Reeve.*

1931. Would from 5 *l.* to 6 *l.* be the expense of drainage?—Yes, that would be the extent.

1932. What depth do you drain to?—Upon the sort of land I was speaking of then, we get as deep as we can; we get an outlet sometimes from four to five feet deep; we are on the water level, and the tide flows up and checks us.

1933. What distance apart do you put your drains?—Some of our draining is very close, I should think twenty-four feet, or somewhere about that apart, according

Mr. *L. Reeve.*

22 June 1857.

according to the nature of the soil. If the soil is very close, of course the drains require to be very close together.

1934. Where your drain is as deep and as close as that, can you do it at 5 *l.* an acre?—Yes, I think about from 5 *l.* to 6 *l.* to do it as close as that. I have put it together since I was before the Committee.

1935. Sir *John Shelley.*] I presume the deeper you drain, the wider apart you go; is not that so?—Yes.

1936. Is not the drainage followed up by trenching a cross furrow ploughing?—Yes; the water draws further in the marshes than it does in the uplands.

1937. With regard to hops as against any other cultivation, in order thoroughly to drain the land, would you not have to lay out the same money in draining it, whatever the crop was?—Yes; for corn I should drain this land.

1938. Will you state the total amount of the cost of cultivation of hops, and the subsequent expenses of picking and drying?—I think the account which I have with me nearly agrees with what I said before, but I give it here in detail with a view of substantiating what I say.

1939. What is the expense of cultivation per acre?—By this account I make it 24 *l.* 16 *s.* 6 *d.* per acre, that is the first expense. We always divide the expense into two parts.

1940. What is the subsequent expense?—£. 1. 17 *s.* 6 *d.* per hundredweight. I called it 40 *s.* before rather from old recollection; but it used to cost much more to get the crop up to London than it does now, when we sent the waggons all the way.

1941. That was before railways?—Yes.

1942. Will you hand in that paper?—

[*The Witness handed in the same, which is as follows*]:

Cost of Cultivating an Acre of Hops in *Sussex*, as calculated by *Lawrence Reeve.*

1857:	£.	*s.*	*d.*
Stripping and stacking poles	–	7	6
Digging, dressing, and poling	2	1	–
Chopping and weeding	–	6	–
Horse-hoeing	1	10	–
Tying	–	10	–
Horsing, tying, and setting up poles	–	2	–
Earthing and ringing in the hills	–	5	–
Striking out furrows	–	1	–
Throwing off ridges	–	1	6
Manure (loads, 100 per acre)	7	10	–
Rent for the best land selected from the farms	2	–	–
Tythe and taxes	1	10	–
Poles (annually)	5	10	–
Interest on expense of planting, &c. in two first years	1	5	–
Ditto on draining	–	10	–
Interest on capital employed	1	5	–
Casual labour	–	2	6
£.	24	16	6

Cost, per Cwt., of Picking, Drying, Cartage Duty, Factorage, &c.

	£.	*s.*	*d.*
Picking	–	7	6
Measuring and pole pulling	–	1	–
Cartage to Oast	–	1	–
Labour in drying and packing	–	1	–
Coal and brimstone	–	1	6
Wear of bin cloths, bags Oast hair, &c.	–	1	–
Factorage and cartage	–	4	6
Loss of weight, custom of trade	–	2	–
Duty	–	18	–
£.	1	17	6

1943. Is not there another point that you wish to explain upon the subject of the amount of capital required by the planter?—Yes. I think I stated before that it would require as much more capital to hold the hops over in the generality of hop farms in Sussex as it would do if the hops were converted into money in the months of October and November. I do not know that I have anything to correct in that. My chief object now is with reference to my reply to a question which was put to me. I was asked whether it would require men of very large capital indeed to carry on the hop cultivation, to which I replied "It does." I only wish to explain to the Committee that it is not by capital alone that the hop cultivation can be successfully conducted, inasmuch as it would be necessary that the person having the command of capital should have the judgment of the merchant to decide when to hold and when to sell his hops, even in the low years, because I have known growers commence keeping at the commencement of a series of full crop years, by which a very great sum of money has been lost; therefore it would not necessarily follow that a large capitalist would command a profit by the business.

1944. *Chairman.*] Another point which I understand you wish to speak to, is upon the subject of hop growing being a business of a very speculative nature?—Yes. I do not know that I quite understood to what the question applied; at the time the question was put, I thought the question had reference to the growing of hops being a gambling business.

1945. The question put to you by the Chancellor of the Exchequer was this: "The hop trade has sometimes been called a gambling trade; do you assent to that?" How did you understand that question?—I thought the question applied to hop-growing, and I think I spoke accordingly. With respect to the growing, I would only wish to explain to the Committee, that I think there are certain instances when even the growing would certainly partake of a highly speculative nature, because if an average crop for the county of Sussex does not pay, it follows that lands where there would be much under an average crop never have had a chance of succeeding; and I think I stated to the Committee that hop-growing in Sussex, as a whole, would not answer any man's purpose. I think one of the Members of the Committee questioned me with respect to my own private business. If it is not detaining the Committee too long, I have the average crop per acre in Sussex in the years 1847, 1848, 1849, 1850, 1851, 1856, in the Rochester collection and in the Canterbury collection, and also my own prices in those years. In 1847 the average growth of the crop was 9 cwts. 2 qrs. 11 lbs.

1946. Sir *John Shelley.*] How do you get at the average growth of Sussex?—It is published.

1947. *Chairman.*] Do you take it from Government returns?—I am not quite sure; the average growth of 1847 is taken from a card, that I imagine is published by the trade. Then we come to 1848; Sussex produced an average of 11½ cwt.; in 1849 the average of Sussex was 3 cwt. 3 qrs. 27 lbs., 4 cwts in round numbers; in 1850 it was 13 cwt. 1 qr. 26 lbs.; in 1851, 5 cwt. 2 qrs. 3 lbs., and in 1856, 11 ¼ cwt. Now I will follow the prices through the year. These are the prices at which I sold the bulk of my hops; I have a letter in my pocket from I may say the largest factor in the Borough for Sussex hops, stating that two-thirds or three-fourths of the Sussex hops are sold before Christmas generally, so that the price in the months of October and November is a tolerable criterion as to what is made of the hops. In 1847 I sold my hops at 54*s.*, in 1848 at 42*s.*, in 1849 at 120*s.*, in 1850 at 76*s.*, in 1851 at 120*s.*, and in 1856 at 63*s.* I can give the average per acre of the kingdom. I do not know the average produce of the separate districts in the intervening years. I have the average growth of Rochester and Canterbury during these same years. In 1847 it was 12 cwt. 0 qrs. 8 lbs. in the Rochester collection, and 9 cwt. 3 qrs. 12 lbs. in the Canterbury; in 1848 it was 9 cwt. 2 qrs. in Rochester, and 9 cwt. in Canterbury; in 1849 it was 4 cwt. 2 qrs. 14 lbs. in Rochester, and 3 cwt. 2 qrs. 25 lbs. in Canterbury; in 1850 it was 11 cwt. 2 qrs. in Rochester, and in Canterbury 11 cwt. 2 qrs. 19 lbs.; in 1851 it was 6 cwt. 2 qrs. 23 lbs. in Rochester, and in Canterbury 5 cwt. 1 qr. 13 lbs. I have the average growth of the kingdom in the intervening years.

1948. Mr. *Knight.*] Can you tell us the average prices of hops in the Can-

Mr. *L. Reeve.*

22 June 1857.

terbury and Rochester collections during this period?—On September 11, 1852, I had a circular sent me from Messrs. Dunk and Son.

1949. Sir *John Shelley.*] Do you believe everything they tell you in those circulars?—I think I may believe this as being relatively correct as to Kent hops as against Sussex; that is all the value which I intend to give to it; Kent pockets were sold at from 80 *s.* to 112 *s.*, Sussex from 80 *s.* to 90 *s.*; that was the Weald of Kent. Here is another in the same year, which says Sussex from 80 *s.* to 90 *s.*, Mid-Kent Goldings from 112 *s.* to 120 *s.*

1950. Do you find if you send your hops up after these circulars, that you get the prices put down in them?—We always receive them as giving some idea of it.

1951. Mr. *Knight.*] Last year, did not Sussex hops fetch nearly as much as Kent hops?—I have not any circular of that year.

1952. Sir *Edward Dering.*] Can you give an average between the entire growth of Sussex and the entire growth of Kent for those years?—I can give the particulars of each district.

1953. Have you any general average of the growth of Sussex and Kent during the whole period?—No; I have not the four intervening years; I could not get that; I have been searching for it in London all the morning, and could not obtain it anywhere. I do not know whether it has been published; I have the average growth of the kingdom for those periods. In 1852, the average growth of the kingdom was 9 cwt. 0 qrs. 15 lbs.; in 1853, 5 cwt. 3 qrs. 1 lb.; in 1854, 1 cwt. 3 qrs. 8 lbs.; and in 1855, 12 cwt. 3 qrs. 12 lbs. But I will go on now to substantiate what I asserted here with respect to the hop growing being a losing business over that period. I think I shall show that the crop in 1847 produced only 26 *l.* or thereabouts, incurring a loss, according to the calculation which I have given in, of 16 *l.* an acre. In 1848 the price was 2 *l.* 2 *s.* per cwt., the total produce would be 24 *l.*, and the loss would be 21 *l.*; the expenses on 11½ cwt. at 42 *s.* per cwt., would be about 21 *l.*, this should be 36 *s.* or 37 *s.*, and the first cost is 46 *l.*, and 24 *l.* 2 *s.* is the total produce. In 1849, the total produce of the crop in Sussex was 24 *l.* per acre, and the loss would be about 9 *l.* In 1850 the produce was 47 *l.*, and the loss would be 3 *l.* In 1851 the total produce would be 33 *l.*, and the loss 3 *l.* In 1853 it is probable there was a profit of 27 *l.* an acre in Sussex. I have not the average growth of Sussex for that year, and therefore I can only speak to its probability, and then in 1855, assuming that the crop produced 75 *s.*, which was about the price that it made, there would be about 2 *l.* 10 *s.* profit; 1852 and 1856 were losing years.

1954. What was the price you made in 1854?—I can state it in round numbers (it made various prices) at about 10*l.* 10*s.* per cwt.

1955. Did not you refuse nearly double that amount?—No.

1956. Were not you offered 17*l.* 10*s.* for your hops?—No; I never was fortunate enough to have such an offer. I remember that there was but a few days that those prices were realised, and but a small portion of the crop realised that price.

1957. Did not they stand as high as 17 *l.*?—Nominally; I tried to sell my hops repeatedly, but I could not do it.

1958. How much could you get when they were nominally 15 *l.*?—I could hardly get an offer for 12 *l.* I was trying to press my sale as much as possible that year, in every way, after the first few days.

1959. Sir *Edward Dering.*] Looking at those quantities which you have given us, and looking at the relative quantities grown in Sussex, and in the Rochester and Canterbury collection, it appears that the average growth of Sussex is much larger than the growth of Kent for years; is not that so?—There would not be much difference over the five years.

1960. Do you mean to tell the Committee that upon the average of five years there is as great a quantity, per acre, grown of East Kent hops as there is of Sussex hops?—I am speaking of the Rochester collection now; I have run the column down, and I see that there is nearly the same as in Sussex in the five years.

1961. Speaking of the Canterbury collection, what is the result?—The Canterbury collection is rather lower than the Rochester over the five years.

1960. Sir

1962. Sir *John Shelley.*] Does not the Canterbury collection include some portion of the Weald of Kent?—Yes.

1963. Sir *Edward Dering.*] Can you give us the average of five years in Canterbury, and the average of five years in Sussex, and the growth in East Kent for 1856 alone?—The produce of the East Kent collection is 9 cwt. 3 qrs. 12 lbs. Then there is the Weald of Kent, 12 cwt. 1 qr. 13 lbs; that is part of the Canterbury collection as it is styled; and I will give the average of the East Kent growth for 1856, 8 cwt. 2 qrs. 26 lbs.

1964. What is the Sussex growth?—Eleven and a half hundred weight.

1965. What is the growth of Rochester?—The growth of Rochester or Mid-Kent is 11 cwt.

1966. Sir *John Shelley.*] Then there is a difference between Kent and Sussex of upwards of 3 cwt. per acre?—Yes, it is about 3 cwt. per acre between East Kent and Sussex

1967. Then, in point of fact, Sussex pays duty on about 3 cwt. of hops per acre more than East Kent?—Yes.

1968. Is not the price of East Kent hops considerably higher than the price of Sussex hops?—There were some prices that I had given me by one of the factors this morning; he gave as the price of the Sussex hops 68 *s.*; it is rather high for Sussex hops; that is the present year. 5 *l.* 5 *s.* was the price for the East Kent, which is 35 *s.* per cwt. difference.

1969. Is there not, therefore, a duty upon 3 cwt. of hops now paid by the Sussex grower, and a difference in price in favour of the Kent grower of 35 *s.* per cwt.?—Yes. I think the relative position of the two parties as growers in the year 1856, according to this showing, would be, that the East Kent grower would make from 45 *l.* per acre of his crop, and his total expenses, including everything, would be 41 *l.* or 42 *l.*; and the Sussex grower would make 39 *l.* or 40 *l.* of his crop, and his expenses would be 47 *l.* Hence he would have a loss of about 7 *l.*, and the other would have a profit of about 4 *l.* or 5 *l.*

1970. Mr. *Brand.*] Can you state any calculation of what amount of duty would be paid by the Sussex grower, and what amount by the East Kent?—The Canterbury grower would pay about 7 *l.* 13 *s.* per acre, and the Sussex grower would pay about 10 *l.* 7 *s.* according to this average.

1971. Mr. *Knight.*] Are there not large districts in both the Canterbury and Rochester collections, producing large amounts of common hops?—Not in this account that I have given of the year 1856 for East Kent.

1972. Mr. *Locke.*] In the statement which you have made you go down to the year 1851, and then you stop, and then go on to the year 1856?—Yes.

1973. Why did you not give the intermediate years?—I could not get them.

1974. Would not the intermediate years tell a different tale from those which you have given?—I should say not; I think it would be something about to the same effect.

1975. Is there any difficulty in getting those intermediate years more than the others?—I have had a great deal of difficulty in collecting what I have. Some of those which I have produced I had in my own possession, and I tried to find the others as well as I could; and I know of no reason why they should not tell about the same tale; I do not believe there is any reason why they would not. I think in answer to that question I said previously there was a profit of 27 *l.* per acre in 1853.

1976. Mr. *Bass.*] I think you told us the other day that moderate crops are far more profitable to the grower than large ones?—Generally they are.

Jovis, 25° die Junii, 1857.

MEMBERS PRESENT.

Mr. Ball.	Mr. Knight.
Mr. Bass.	Mr. John Locke.
Mr. Brand.	Mr. Wykeham Martin.
Sir Edward Dering.	Viscount Pevensey.
Mr. Dodson.	Sir John Shelley.
Mr. Beresford Hope.	

JOHN GEORGE DODSON, Esq., IN THE CHAIR.

Doctor *Stephen Monckton*, called in; and Examined.

Dr. *Monckton.*

25 June 1857.

1977. *Chairman.*] HAVE you been a hop grower?—I have, for some years.

1978. For how many years?—I may say for 14; but personally and strictly, for five only; I have been engaged in the culture of hops for 14 years, but on my own responsibility for five only.

1979. Mr. *Knight.*] What number of acres have you cultivated?—A breadth varying from 40 to 20 downwards.

1980. *Chairman.*] In what part of the country?—In the Weald of Kent.

1981. Near what place?—Between Cranbrook and Tunbridge, in the parish of Brenchley.

1982. Is that your own land?—It is.

1983. You said you had been engaged for some years in growing hops, not on your own account; on whose account were you then engaged?—That was as aide-de-camp to my father.

1984. What kind of hops do you grow?—The grape, the Jones's, the Colegate, and an experimental piece of Goldings.

1985. Has the experimental piece succeeded?—It is the first year of poling, and therefore still *sub judice*; so that we can hardly say.

1986. At what do you set the expenses of the cultivation of an acre of hops?—My own expenses during the last five years have undoubtedly exceeded 30 *l.* per acre; but considering as I do, that part of that was devoted to the permanent improvement of the property, I can hardly set them higher than 27 *l.* 10 *s.*

1987. When you speak of permanent improvement, what sort of improvement are you speaking of?—I refer to the manuring and the general cultivating expenses, which we would hardly incur in connexion with the short lease, or a temporary interest.

1988. Sir *John Shelley.*] What do you mean by a short lease?—A lease for seven years.

1989. Do you call seven years a short lease?—I should say that it was, especially in the case of hop cultivation, when our calculations must be based on a broader basis than in the case of corn, or ordinary crops.

1990. Are the general holdings in your district on leases longer than seven years?—I quite imagine that they are. I should say that the average length was 14 years.

1991. Do you know that of your own knowledge?—My own tenants all hold at 14 years, and I know many others who do the same, and some who hold a 21.

1992. Is that the general custom in the Weald of Kent?—As far as I am cognisant of the custom, it is.

1993. Sir

1993. Sir *Edward Dering.*] Is that common in the Weald of Kent?—Yes, I think so; the exceptions are also common. We have in our neighbourhood instances of annual holdings; but leases to a longer extent, such as 12, 14, and 21 years (10 years is a very common period), are abundant too.

1994. Are not annual leases common in the Weald of Kent?—They have been.

1995. Do not you think that four out of six are annual tenants?—I should doubt it; it is a question that I have not studied.

1996. Do you know Mr. Morland's property, in the Weald of Kent?—I do.

1997. Has he a lease upon it?—I fancy not; but that is the exception.

1998. Sir *John Shelley.*] In making a calculation of profit and loss, do you look upon yourself as tenant for 7, 14, or 21 years?—I deduct a certain amount of my expenditure as permanent; and I consider that I have no right to expect to reimburse myself for that portion out of the crop; I imagine that I find my equivalent in the permanent improvement of the land. I have considered myself a tenant for 14 or 21 years.

1999. Supposing you are an owner of property which you are not cultivating yourself, would not you have to lay out a certain amount of money in order for the tenant to cultivate?—That I exclude altogether in all calculations; I consider myself as the tenant. I exclude what is strictly the landlord's expenditure; he has a profit according to his expenditure. There are many expenses in excess over an ordinary tenant, because he knows he can rely upon bringing it out again on a future day.

2000. With regard to the landlord's expenditure, does not the tenant pay rent according to the accommodation he receives from his landlord?—Nominally he does, and in some cases actually; but that is more a matter of liberality than of necessity.

2001. Do you think that in general, in deciding the rent that a man gives for land, he does not take into consideration at all the accommodation given by the landlord?—Nominally he does, and to a certain extent he really does; but it is a subject in which a great margin exists.

2002. Do you mean to say that a landlord, in making permanent improvements upon his land, does not look to receive interest upon the money he has expended?—I unquestionably apprehend (it is my own case), that the landlord would provide draining pipes at a considerable outlay, and not charge a halfpenny; he looks at the ultimate profit to the estate as a sufficient remuneration for the outlay.

2003. The ultimate profit being that if the land is well drained, and has proper accommodation in the shape of buildings and so on, in the event of any difficulties arising, the land would be let before other land that was not put by the landlord in the same condition?—That is one way of expressing it; perhaps the better way would be to say that he does it in expectation that when the existing lease will be expired, he will find a greater facility, if the market is low, in letting the land at a higher rent if the market is at an average figure.

2004. Supposing the farm has no hops upon it; I suppose that before a man can grow hops he must be certain he will have an oast house?—I have known cases where that certainty was not obtained, and the possession of it never realised, as regards the concession of the landlord; I have known tenants compelled to build their own oast houses after planting hops upon another man's farm at their own expense.

2005. Would they do that without a long lease?—I am afraid that the case in my mind was an annual holding.

2006. *Chairman.*] You state that the expense of cultivation was 30 *l.* an acre?—In my personal case, which I also admitted to be exceptional; and I went on to say that I have no doubt whatever that the usual expenditure in my neighbourhood exceeds 27 *l.* 10 *s.*

2007. Sir *John Shelley.*] What do you consider the exceptional circumstances in your case?—This: that I began with land at a low ebb, which wanted raising permanently to a different point before I could charge fair expenses upon it; now, these being my circumstances, I believe I may represent by 50 *s.* the difference of the profit which I admit between myself and others.

2008. What is your general rent for such land?—The general rent for such land is 1 *l.* per acre.

Dr. *Monckton.*

25 June 1857.

2009. What is the highest rent, and what is the lowest?—I should say 10 *s.* is the lowest, and I really know of none of the land over 40 *s.* If there be any, it is some very exceptional corner or other, or something of that sort; you may range it from 10 *s.* to 45 *s.*

2010. Is that Weald of Kent land?—Yes; but I am speaking now of my own neighhourhood. I dare say there are in the Weald of Kent, in the immediate vicinity of Tunbridge and Tunbridge Wells, special accommodation plots which are higher.

2011. What is your extraordinary tithe?—The extraordinary tithe is 17 *s.* or 17 *s.* 6 *d.*

2012. Mr. *Knight.*] Is that taken before or after picking?—Before picking.

2013. Mr. *Brand.*] Is that the usual sum for the extraordinary tithe throughout the Weald of Kent?—Very nearly; I think from 16 *s.* to 18 *s.* a very fair representation of the extraordinary tithe.

2014. *Chairman.*] Will you give the items of the expenses of cultivation?—I rather contemplated offering to the Committee an account of the expenses as detailed by a most able and a most unprejudiced party.

2015. You have given your expenses as 27 *l.* 10 *s.*; the Committee wish to have the details of that from your own experience?—I wish to refer to this book, merely to refresh my memory; but still every one is from my own experience. The manure, for instance, costs 8 *l.* per annum; digging, 20 *d.* per hundred. My personal expense has been 12 *s.* for 600, which would be 24 *s.* an acre.

2016. What work is that to which you are referring?—This is Mr. Morton's Encyclopædia; the article is by Mr. Paine, a farmer: it is a most ably written and well-digested article; it is written in a perfectly dispassionate way.

2017. Sir *John Shelley.*] Is that the Royal Agricultural Society's Journal?—You will find the same article in the Royal Agricultural Society's Journal. You will find the author makes the expenses 28 *l.* 10*s.*

2018. *Chairman.*] What do you put the expenses of poling at?—I think we paid 16 *d.* a hundred for putting up the poles; that is 16 *s.* the acre.

2019. Sir *John Shelley.*] That is the cost of erection?—That is for the sharping them down, and the operation of putting them up.

2020. *Chairman.*] What do the poles cost?—I should say that we want one thousand new 12-feet poles per annum, and they would be worth 7 *l.*

2021. What is that per hundred?—That is 14 *s.* per hundred. I see they were sold the other day at a pound. We put them at less.

2022. Sir *John Shelley.*] What size poles do you put in your garden?—All sorts, from 16 to 19 feet. I take the average at 12. Another thing is, that if you take the large poles you renew them less frequently; if you put in small poles you renew them more frequently; so that I think 12 represents a very good average.

2023. *Chairman.*] How many hills do you reckon to an acre?—Twelve hundred and ten.

2024. How many poles to a plant?—Two, three, or four, according to circumstances; when few are used they are much larger and more expensive poles.

2025. Sir *Edward Dering.*] Do you not generally use four poles in Kent?—I should hardly say so, I should say three: we grow a great many grapes, and no grape or Colegate ever has more than three poles; four is confined to the Jones' hop almost entirely.

2026. *Chairman.*] What do you put the expenses of tying and digging round the hills at?—We pay for tying from 8 *s.* to 10 *s.* per acre generally.

2027. And for hoeing?—For chopping round we pay exorbitantly, as we are situated upon the Wealden clay; the manual labour is most costly. I have paid as much as 1 *s.* a hundred, that is 12 *s.* an acre, for chopping round; I have done it for some time: but I am merely speaking with regard to my personal position; in general it would be 6 *s.* an acre for chopping.

2028. What is the rate of wages in your neighbourhood?—I think I may say that 12 *s.* a week is our rate of wages by the day; by the piece they do earn more when they perform these operations.

2029. Sir *John Shelley.*] Does your land get so set that it requires heavy manual labour?—Precisely so; it is superable, I believe, by continuous cultivation, free liming, and liberal intermixture of other soils, if we can get them; but

but at present we have a vast deal to accomplish before we make our Wealden clays workable at a moderate expense.

2030. *Chairman.*] What do you consider the amount of expense during the first five years to bring an acre of land into bearing for hops?—We always calculate that if you plant bedded sets, after the first year you begin to reap a crop. The second year you may calculate upon a pretty good return, unless you adopt what is now an almost obsolete custom of planting cut sets. I think no man has a right to claim exemption on that ground, because it has ceased to be a general practice.

2031. It is not your practice?—No, nor is it the practice of the neighbourhood.

2032. What do you put the expenses at for the first year?—I have calculated that when they are complete you would find it run from 20 *l.* to 25 *l.*, but it varies as to the liberality with which you do it; if you do it thoroughly, you may easily put 25 *l.* upon it, that is, if you do it thoroughly and liberally, as it should be done.

2033. Do you calculate the interest upon that?—I cannot say that I ever have done, for this reason, that the benefit accruing to the land by virtue of its having been under hops, and therefore fallowed for corn, in the end is equivalent to what I lay out in the beginning.

2034. In your account you do not take that into account?—No; my 30 *l.* would be chiefly made up by an addition to the 8 *l.* which I have given as the ordinary cost of manure.

2035. Sir *John Shelley.*] In the case of farming upon a lease of seven years, would you contemplate grubbing the hops again before the end of the lease, and turning the land into corn land?—No; but it is most probable in the case you have supposed that the tenant would not have instituted a new plantation, unless he has grubbed an old one; therefore he takes in one field what he expends in another.

2036. *Chairman.*] Does the manure cost 8 *l.* an acre?—I have spent 16 *l.* an acre upon manure alone.

2037. What do you use?—Dung, rape dust, rags, and superphosphate.

2038. Upon that you spend 8 *l.*?—Most easily; even the labour of turning and carting out the dung, which we do not charge as manual labour, is an immense item. To cart 60 cart loads of dung is a serious thing.

2039. Sir *John Shelley.*] Would not you have to do that if the dung was used upon roots or any other crop?—Yes; but we do not use manure to the same extent upon roots as we do upon hops.

2040. How much do you make the whole expenditure per acre?—I would request the Committee to put it at 27 *l.* 10 *s.* I have no desire to overdo it. I think it is relevant to the present question to make this statement. You had a gentleman with more practical experience than myself, who has probably farmed more acres than ever I did, who was giving evidence the other day as to the cost of cultivation before picking. He set it at 22 *l.* Now I will tell you what the gentleman said upon cross-examination: he told you, as I do, that the manual labour came to 12 *l.*; he told you that he put the manure, as I do, at 8 *l.*; that is 20 *l.*; and he left 2 *l.* to pay for the hop poles, rent, rates, tithes, and taxes. Now I submit respectfully that there was a slight discrepancy between the facts and his representation of them.

2041. *Chairman.*] What do you calculate the subsequent expenses to be?—£. 2 per cwt.

2042. Of which the duty amounts to, how much?—Seventeen shillings and sixpence, or something of that sort; nearly 18 *s.* in round numbers.

2043. Is that allowing for the deduction for tare?—No; we do not allow that, for there is a very respectable margin on the other side; and if we took off a per centage on one side, we could easily find a per centage upon the other.

2044. What is the deduction?—Ten per cent. is the Government allowance.

2045. What per centage do you put on the other side?—Simply this: that when we say 40 *s.* we a little undervalue the outlay. I had it carefully calculated a little while ago by an able accountant, who supervised a plantation, and he put in a calculation the whole cost which actually had been 43 *s.* a hundredweight; and, therefore, I say that if we save 40 *s.*, even if we allow a trifling margin, it will not be much wrong.

Dr. *Monckton.*

25 June 1857.

2046. Do I understand you to say that theexpense was 43 *s.* per cwt., and not that the Board of Inland Revenue do not allow 10 per cent?—That is my assertion.

2047. On this 43 *s.* you put the duty at 18 *s.*?—Yes; I say 40 *s.*, but I find that it has cost 43 *s.*

2048. Did it cost you 43 *s.*?—I never went into the account closely enough to know, but a relative of mine did, and said that that was the amount, and I have audited his figures, and am satisfied of their correctness.

2049. What are the principal items which make up the remaining 22 *s.*?—Picking.

2050. What do you put that at per bushel?—I know a case within the last three years where the picking has cost 16 *s.* the cwt., but that is very exceptional.

2051. Sir *John Shelley.*] Was not that a slight crop then on the poles?—It was a large crop, but I remember we were so inundated with hops, and so badly supplied with pickers, that we were obliged to concede exorbitant wages.

2052. What year was that?—1855.

2053. *Chairman.*] What do you put the cost of fuel at?—I cannot tell you, but it is merely a matter of adding up; I have added the whole expense up repeatedly, and I know it was 40 *s.*, but I am not prepared to say what the cost of fuel is.

2054. You would not undertake to say what the expense of drying is?—I undertook to do it for a neighbour, and for fuel and the man's time in the oast-house I charged 7 *s.* per cwt. I wish to draw a line between what I tell you that I know, and what, at the request of the Committee, I guess.

2055. Mr. *W. Martin.*] How many bushels go to a hundredweight?—It varies very much; a pocket of 1 ½ cwt. varies from 80 to 150 bushels.

2056. *Chairman.*] What do you say that the poles cost per acre?—They cost 7 *l.* I daresay we contrive to do it for less; it depends upon whether you use old poles or not. I put them at 14 *s.* per hundred for 12-feet poles, and 1,000 per acre needed every year; I think that is high enough; perhaps we contrive to do it for 6 *l.* an acre.

2057. Do you know anything of the growth of hops abroad?—Very little.

2058. Have you had any personal experience of it?—Not by witnessing their practice, but only by bringing my own into competition in some of the foreign markets.

2059. What markets do you refer to?—Those in the north of France and the south of France, on the confines of Germany.

2060. With what hops were they brought into competition?—Belgian and Bavarian.

2061. Did you send your hops over there?—I did.

2062. Are you in the habit of doing so?—No; it was a mere experiment.

2063. You did so on one occasion?—On two occasions; both experimentally.

2064. In what years was that?—1855 and 1856.

2065. Were not those years of abundant crops?—Clearly; the market was overloaded at home.

2066. What were the hops worth in England?—Seventy shillings on the average of some months; their value varied.

2067. At what prices did they sell them?—I am sorry to say they have not been sold at all; I have never sold a hop there.

2068. Were you undersold by the Belgians?—I was hardly undersold, for I did not put a reserve upon them; I put them on the market for sale, and I failed to sell them, as I believe, partly because I did not personally press the thing myself; I had been very strongly urged, and I sent a small quantity, a ton, and it appeared that the market was strange to them. As far as I could see, the merchants, who were experienced men, were not familiar with the English hop, and hardly knew where to place it in value, what to ask for it, or how to dispose of it.

2069. Mr. *Knight.*] Did you receive a drawback upon them?—I did receive a drawback.

2070. *Chairman.*] What was your object in sending the hops there?—Simply to feel the market. I had some personal friends who had a knowledge of the country, and I thought it might lead to advantage if I could get a market there.

2071. At what price do they sell hops there?—They have a custom very generally in the continental markets by quoting minus the duty, and 40 *s.* is the

the price of hops sold free of duty; therefore you will allow me to reduce my 70 *s.* to something under 60 *s.*, when I contrast it with the foreign markets. Their reports to me were, that they could get Belgian hops, what they call *sur place*, that is, without any expenses put upon them, at from 40 to 50 francs, therefore I call it 45 *s.*; and they told me that mine were worth 60 *s.*, and that the best Bavarian could be had, under similar circumstances, and with similar expenses still to accrue upon them, for less than 4 *l.*

2072. Sir *John Shelley.*] Although they were worth 60 *s.*, are we to understand that they did not fetch 60 *s.*?—Quite so; they were not sold. I simply state the business reports which I had from my friends the merchants.

2073. Mr. *Brand.*] What was your inducement to send them there?—Because I had not made myself master of what they would fetch, and I only sent a small quantity as a risk.

2074. Were you quite in the dark as to what they would fetch?—I was not quite in the dark; I had been informed by a friend on the spot, and that friend misinformed me.

2075. Sir *John Shelley.*] Has this led to any conclusion in your mind with regard to the foreign trade?—It leads me to a very strong conclusion, namely, that so long as there is a good market and a good price, there are good continental hops to be had in large quantities, of variable quality, and at lower prices than their representatives fetch in our market.

2076. Has the experiment to which you allude, of sending two tons of your hops over to that country, brought you to the conclusion that, in the event of the Customs duty being taken off, it is possible that the market here would be inundated with foreign hops?—The word "inundated" is too strong for my impressions. I believe that, under the circumstances that you suppose, we should be exposed to a very smart and undesirable competition.

2077. Have you come to that conclusion in consequence of the hops sent over from this country to that country having been quite unsaleable?—Yes; unsaleable at anything like a price equivalent to what they would fetch here.

2078. Did I rightly understand you to say that they were unsaleable, because you had not set about selling them in the right way?—Hardly so. I say they might have been saleable if I had been more urgent; and my intention in sending them to the merchant was to get more information upon foreign markets, and rather than thrust them upon the first channel, as they were there upon an experimental errand, I moved them about.

2079. Notwithstanding your want of urgency in your sale of hops, have you come to the conclusion, and do you give it in evidence to this Committee, that, in consequence of these hops not being sold, foreign hops can compete disastrously with English hops?—I say, that one reason why they were not sold was, that I did not urgently prosecute my business. I wanted to sell those hops, but I wanted to make the test.

2080. Mr. *J. Locke.*] What price did you put upon them?—None.

2081. *Chairman.*] That was in the years 1855 and 1856?—Yes.

2082. Are you aware whether those years were years of large crops and low price in Bavaria?—I do not know.

2083. Have you any knowledge with respect to Belgium?—I have heard that there was a large supply of Belgium hops in that year. I had no knowledge of it.

2084. Mr. *Beresford Hope.*] Did you send them abroad without actually knowing what the state of the market was?—To a certain extent; I sent them by way of experiment.

2085. Sir *John Shelley.*] To what expenses were you put in sending those hops?—I got the drawback, I suppose, of 17 *s.* per hundredweight.

2086. What expenses were you at for carriage?—I think they cost me 35 francs per hundredweight into Paris.

2087. How much is that?—It is nearly 30 *s.*

2088. Did I rightly understand you to say that at that time the hops were worth 70 *s.* in the home market?—They were worth 70 *s.* in the home market. It is 1856 to which I referred you.

2089. You had to pay 30 *s.*, allowing for the drawback in addition?—Quite so.

2890. Were you aware of the price that foreign hops were fetching in the market?—I was aware, inasmuch as I can submit to the Committee the account

Dr. *Monckton.*

25 June 1857.

which I myself received: Belgian hops were worth from 40 to 50 francs in Belgium, which is the way they seem to have of estimating the cost of hops; the Bavarian hops were worth 100 to 110 francs in Bavaria; 4 *l.*, according to my calculation.

2091. Sir *Edward Dering.*] You told the Committee just now that you considered that you might almost calculate upon foreign hops being brought into this country if the Customs duty were taken away?—Yes.

2092. Did I rightly understand you to say that you draw that inference entirely from your personal transactions, or from what you heard subsequently?—It was from opinions and from general information, of which my personal experience constitutes an important part.

2093. In consequence of an unfortunate speculation on your part, you have become better acquainted with foreign hops?—I think that has enhanced my knowledge upon the subject.

2094. Mr. *Knight.*] At what price do you think good Belgian hops could have been sold in this market last year, if there had been no duty at all?—Judging from what I heard from those foreign merchants, I should think at from 45 *s.* to 50 *s.*; they might be sold abundantly, even those of a better class.

2095. At what should you think the best Bavarian hops could have been sold in the market?—I think, from all reports made to me, they might have brought 4 *l.* in Bavaria, and I should imagine the carriage would come to 15 *s.*, that would make 4*l.* 15 *s.*

2096. Sir *John Shelley.*] Was that the return made to you by your merchant?—It was.

2097. Could you furnish the Committee with that?—Certainly.

2098. Sir *Edward Dering.*] That is exclusive of the duty?—Exclusive of everything; that is the price of hops on the spot where they are grown, but 4 *l.* 15 *s.* includes the carriage to England, but not the duty.

2099. *Chairman.*] What class of hops were those that you sent abroad?—Jones's.

2100. Were they selling for 70 *s.* in England?—Yes.

2101. Have you come to the conclusion that if there were free trade in hops, it would lower the price of hops in England?—I can see no reason to doubt it.

2102. Would that be the case when the crop is very considerable?—No, I think not. We should generally, so far as I can venture to form an opinion, exclude entirely from cultivation such a comparatively large section of English acres, that the supply would not be very much increased, and therefore the price would not be very materially lowered; in fact the trade would not become much less remunerative, but it would pass out of English hands.

2103. Sir *John Shelley.*] Do you know the expense of the cultivation of foreign hops per acre?—I have had statements from the country.

2104. Mr. *Brand.*] Cannot you speak of your own knowledge?—No.

2105. Mr. *Bass.*] Do you know the produce per acre?—No, I do not.

2106. I have an account here from various parties, showing the produce in Bavaria and Bohemia, and I find in each case that it is represented by the merchants in that country who buy the hops, that the average produce of this year in Bavaria and Bohemia is very little over two cwt. per acre. Have you any reason to doubt that?—No, because my information so far confirms the conclusion that that would suggest of their infamous management, which of course readily accounts for it.

2107. Do you mean the management in the growing?—I do.

2108. What is their management?—In regard to the stocks, they allow the stock to perish. Instead of cutting it back and keeping it in its proper position, it is mounded up into the air and rendered doubly liable to the effect of frost or drought.

2109. Mr. *Brand.*] Have you seen that?—No; I have seen it at one season of year only.

2110. Mr. *Bass.*] Are you aware of the principal features of difference between the cultivation in the two countries, Bavaria and England?—I cannot say that I am.

2111. Sir *John Shelley.*] In all the former part of this evidence, you are not speaking from your own knowledge, but from information?—I judge, so far as a man forms an opinion; but allow me to remark, that the cost of the cultivation

tion abroad does not form an item in our calculation, because we consider it to be probably included in the result. If we know that they can produce and sell at 40*s.* per cwt., it does not need much calculation as to the cost per acre.

2112. *Chairman.*] Do you know whether they can cultivate many more acres on the continent?—No; but I take it for granted that Europe was a sufficiently large field to admit of any increase.

2113. Sir *John Shelley.*] Do you say, that as far as you know, you believe that they can grow hops at 40*s.*?—Certainly; I know they sell them for less.

2114. Can you say whether those hops which are grown at 40*s.* are grown at a profit or a loss?—I do not know; I know that they are grown frequently at that price.

2115. Mr. *Brand.*] Is the information you have given the Committee with reference to the growth of hops in Belgium and other countries derived from other sources, or have you any personal knowledge of it?—I have been through the plantations, and I have had, besides, statements from the merchants there: but I have never been required to prove it, nor to sift personally the whole routine of culture.

2116. *Chairman.*] Do you think that free trade would not lower materially the price of hops?—I think it would not; it is impossible.

2117. Do you think that the effect would be to substitute foreign hops for English?—Precisely.

2118. The price of the hops being the same, would not the consumers at home prefer English hops?—No, I think not.

2119. Why would they prefer foreign hops to English?—There would be no sort of preference. We have seen lately that foreign hops are very acceptable in well-judging practical quarters.

2120. Sir *John Shelley.*] What foreign hops are you speaking of?—A large number of them come from America; a large quantity of Belgian hops come to hand; and of course Bavarian are much resorted to. Allow me to mention another thing; the price would fall till the consumer has inducement enough to use foreign hops, and they will be used.

2121. *Chairman.*] If the price were not materially diminished, why should the cultivation in England be materially diminished?—It would diminish just to that point where the differential advantage favourable to foreigners ceased.

2122. If the fall in price was slight would not the amount of land in cultivation in England that went out of cultivation be slight?—It would be the least favoured land that would go out of cultivation.

2123. If I understand your statement right, it is that free trade would produce very little effect either one way or the other; is that your meaning?—It depends entirely upon what the quantity of imported foreign hops would be, but there will be growth enough to exclude from cultivation a large amount of English acres; whether the surface were large or small, whether they farmed well or ill, whether we found the Continent capable of sending out a very large or a very moderate supply of very good or very bad hops, my impression is that a great deal of English land would still be able to compete, with advantage of carriage and reduced expenses and the non-payment of the duty at home; but when it became a question if there should be a crop in England on the small producing acres of land in England, they would have no chance whatever; but yet, upon a guess, not from my experience, I believe that within from 20,000 to 25,000 acres will go out of cultivation at home. The planters will suffer, and the price will fall. It would be the greatest misfortune that could happen to us; and I think it is no great exaggeration for a planter to conclude that, with the advantage of a longer summer, greater heat, and cheaper labour, the average would be certain.

2124. If the acres are unlimited abroad, might not it have the effect of materially lowering the price of hops in England?—That depends upon what standard you assume.

2125. Mr. *Knight.*] It would not materially lower the price in seasons when hops are low; but do not you think that when hops are high it would very materially lower the price?—Yes, undoubtedly I do think that we should be most severely pinched, and should be entirely deprived of the compensation of a higher price, which we have a right to expect in short-cropping years.

2126. Sir *John Shelley.*] After all, do you take into consideration the question of the duty upon hops?—No; I assume that the duty was abolished.

Dr. *Monckton.*

25 June 1857.

2127. Mr. *Bass.*] What do you regard as the least favoured districts you say will suffer more by foreign competition than others?—The term "districts" was perhaps slightly misapplied. I should have said the least favoured plantations. They are distributed throughout the country. Among the whole plantations you will find certain plots which labour under this disadvantage, that they cannot grow a first-class hop, and where they cannot, without an exorbitant expense, grow large crops; it is not a district, but it is a certain number of acres.

2128. As an experienced grower would you yourself continue to keep up your hops?—It depends on circumstances. There is a certain limit within which we do not use them now, but I say that the line would be drawn infinitely closer.

2129. Are you aware that there has been a considerable importation of foreign hops within the last two years?—Yes.

2130. Although we have had two of the largest crops that there have been?—Yes.

2131. Do you know of what sort those foreign hops were?—I presume a large quantity of Bavarian, and some Belgian.

2132. Have there been any Belgian hops imported?—I do not know.

2133. I understand you to be endeavouring to convince the Committee that it is the growers of the low class of hops in this country who will be sufferers by foreign competition. Supposing it to be the fact that not a single pound of Belgian hops has been imported in the last two years, but that there has been a large import of the very best Bavarian hops that could be produced, does not it follow that it is the grower of the higher sort of hops in this country who will suffer, and that you need not fear foreign competition for the low priced kind of hops?—I referred to the least advantageously situated acres; and I distinctly included under that term those acres that can neither grow the first-rate quality, nor a large crop of the inferior quality, therefore I believe that both those planters would be prejudiced.

2134. Will you be good enough to tell the Committee whether in your opinion, taking them as a class, the grower of the low-priced crop or the grower of the high-priced crop would suffer most?—I am inclined to think that the high-priced crop will suffer rather the most; but I cannot say. But I do respectfully submit to the Committee this general principle, that we cannot introduce an unlimited quantity of hops from abroad without lowering our own market. One section may suffer slightly more than another; but if we import half the consumption, one-half that is sold at a much lower rate, all will suffer in turn.

2135. Sir *John Shelley.*] Do you consider your hops to be of the higher class or of the medium class, or of the lowest class?—Of the medium class.

2136. Then would your last answer apply to your own crop?—I say that it does not depend upon the sort that you grow, but upon your capability of growing. If you have land that will grow a large quantity of the medium class of hops, it will keep up. But where you have fields that will only just pay now, where it is just worth while to pay labourers and to keep up the farm, it will cease to pay in competition.

2137. Do you think that in the case of free trade, your hops not being of the lowest class, at any rate would enter into competition?—I think that my hops would suffer from the general principle. I say that I have samples here just as good as ours; and it is so many shillings less; as the range of the price is low, we cannot afford to hold on the greater amount.

2138. *Chairman.*] Is not there a broad demarcation between the value of different kinds of hops?—Nominally, as regards the merchant and the brewer, there is; as regards the factor, there is a much less distinct line.

2139. Is not there a great difference in price between the Jones's and the Colegate hops, and the Goldings?—Certainly, there is.

2140. Would not it be a question in considering the importation of foreign hops, whether the hops imported were hops of the same quality, or hops of a lower quality than those with which they were competing?—I admitted that there will be a question; that there would be some interest that would suffer rather specially; but the influence would be universal, notwithstanding that the pressure was more severe in one case than another.

2141. Mr. *John Locke.*] Did not you state that you estimate the carriage of hops from Bavaria at 15 *s.*?—I guessed it.

2142. Was

2142. Was that a mere guess?—Yes.

2143. Are you aware that the freight of hops from Antwerp to this country is only 1 *s.* a cwt.?—No, I was not; but that only shows the pains I have taken not to overstate my position.

2144. So that the last expense would be 5 *s.* instead of 15 *s.*?—If that is so, it only makes my position still stronger.

2145. *Chairman.*] If that is the fact, would not free trade lower the price in England more than you expected?—Undoubtedly it will facilitate their competition with us by 10 *s.*

2146. In speaking of competition, have you taken into consideration the advantage which it will be to English growers to have no Excise duty?—I have assumed the absence of the duty in either case.

2147. Have you assumed the absence only of the amount of the duty?—No; I do not know that I have. I agree that there would be incidental relief not represented by money value; but then I think that that relief is attainable in other ways.

2148. Sir *John Shelley.*] In what ways?—By levying a duty not assessed by the hundredweight.

2149. *Chairman.*] Is not the present tax a tax upon the quantity of hops grown?—It is.

2150. Would not the fairest tax be one on value?—No, I think not.

2151. Why not?—Solely for this reason, that the value of the article in the market does not necessarily represent the profit it carries to the producer. I should think no ground of incidence so fair as one that would represent itself by a tax upon profit; but in practice it is impossible to carry this out exactly.

2152. Would not the nearest to that be a tax upon the value of the hops?—I think not, because it will be found that the valuable hops are grown in small quantities, and therefore they would not necessarily give the largest profit.

2153. Have you not stated that there is a broad line of demarcation between the prices of the different kinds of hops?—Yes; as regards the consumer, I think so; but I do not think that there is as regards their value as market produce. I believe that if I carry a good Golding and a good grape to the factors, that I shall get a difference between the two of 25 per cent.; but I very shrewdly suspect that before they go into the copper, there would be a difference of 40 or 50 per cent. made upon them.

2154. There is a difference to the grower of 25 per cent.?—There is.

2155. Does it not follow from that, that the quantity of hops is no measure of the value of the crop?—It is one mode of measuring it; but by itself it certainly is not a measure.

2156. When you come to the different kinds of hops, is quantity any measure of value?—I do not know how to answer that question.

2157. Is it not the fact that there is a difference of price between the different kind of hops at the very least of 25 per cent.?—Yes.

2158. So that, when you have two loads containing a different number of hundred weights of hops; you cannot say that the greater number is the most valuable?—Of course not; but still the quantity is one of the items in the value of the mass, though it is not the sole or sufficient measure of its value.

2159. Does it not follow from that, that a tax placed upon the quantity of hops is necessarily unequal?—Undoubtedly.

2160. Sir *John Shelley.*] I understood you to say, that there is a difference of 25 per cent. between the prices of different kind of hops as sold to the factor, but that before they go into the copper you suspect that it is above 40 per cent., what do you allude to?—I allude to the fact, that those who buy the hops are generally better judges of their real value than we are, and that they do not over-pay for the difference in value, though they may be perfectly ready to oversell; I think that the produced hop passes from hands not thoroughly *au fait* at its actual value, and goes into hands who appreciate it to a nicety, and that then it is again sold to parties who are not always first-rate judges; and I think that if you apply general commercial principles to that statement, you will see some explanation of what I say, that we do not get the difference that is ultimately made between the two articles.

2161. Who is it that gets that extra profit?—The intermediate man.

Dr. *Monckton.*

25 June 1857.

2162. Mr. *Bass.*] Are not the factors generally considered confidential agents?—It is only among themselves that that consideration passes current.

2163. Sir *John Shelley.*] Do not the large brewers employ merchants as their regular agents to supply them every year?—Yes; I presume they do.

2164. Are those the intermediate men to whom you refer?—They are one class of the intermediate men; it is a complicated system.

2165. Do you mean by that answer to suggest that the merchant who deals with the brewer makes an unreasonable profit as between the seller and the brewer, who is the ultimate buyer?—The question of its being reasonable or not, lies with his own conscience; he makes a large profit.

2166. Do you think that the brewer gives a general order to the merchant to buy the quantity of hops, without looking to the quality?—That you must seek from the brewer; my impression is, that the large brewers who hold a considerable stock, employ buyers of their own, and can of course trust them.

2167. You suggest that the last man, namely, the brewer, knows very little about his business; does he trust to the merchant to buy for him?—What I said was, that I believed the middle man was generally the best judge of the article; I do not wish it to be supposed to abuse the brewers; but I believe, as far as my information goes, that the brewer is less *au fait* as a judge of hops, than the merchant or the factor.

2168. Do you believe that in the supply made to the brewers they are governed by the mark upon the pocket rather than anything else, or that the brewers look to the quality of the hops without reference to the mark of the place where they are grown?—To that I should venture to answer that the small brewers are undoubtedly influenced by the mark; but that the large brewers go more by their agent; for they place implicit reliance upon their merchant as to the general quality, not perhaps having the advantage of watching the purchase closely. I believe that the small brewers may depend upon the mark. And there is another class of consumers that would depend very much upon the mark; that is, the retailers. We do not see much of that in this county; but in the north of England there are people who retail largely; and I believe if those people were to lose the protection afforded by the Government mark, they would be open to imposition to a large extent.

2169. *Chairman.*] Do not you think that the same mark which protects small people from imposition may be the means of imposition upon others. Have you ever heard of hops of one county bearing the mark of another?—I have heard a rumour of such things; but I think, if I understand the question correctly, it involves a breach of the law; it is a false packing, and therefore it is no argument against the value of the law.

2170. Do not they do that in the northern counties?—I admit that it may be done; I never heard of it there. But I can tell the Committee where it is open to abuse. It is open to abuse in this way: it often happens that a place with a valuable mark has some little offshoot of itself in another region that happens to come under the same parochial law, and that offshoot produces a hop of less value than the original parish, but is entitled legally to carry its mark. But, on the other hand, in all probability, it gets known largely in the market that this is the case, and the purchaser might escape being misled.

2171. Sir *Edward Dering.*] Do you refer to a case where a man has land in two different parishes, and marks it as all coming from one?—Not so; he would not dare to do that. I will instance what I mean by a parish near myself. That is a parish in Mid-Kent which happens by chance (how I do not know), under the old law regulating parochial divisions, to have a little appurtenance not connected with it geographically in the Weald of Kent. Now, that is actually one parish bearing the same name, and the name is not only entitled, but compelled to put a name upon it which represents a parish almost wholly lying in Mid-Kent.

2172. What is the name of that parish?—Nettlestead.

2173. If that be so, ought not the mark of that parish legally to be affixed?—Just so; it is grown in the parish to which the mark belongs.

2174. There is no fraud in that case?—No.

2175. Mr. *Knight.*] The Chairman asked you some question about the incidence of the duty; did not you say that it was unfair, because Goldings were worth 25 per cent. more than grapes?—Yes.

2176. To make it fair would it not be necessary that if the duty upon grapes were four farthings a pound, the duty upon Goldings should be five?—Yes.

2177. That would be a difference of a farthing a pound?—Yes, it would.

2178. *Chairman.*] You have said that the tax at present imposed upon quantity operates unfairly?—Yes.

2179. Is there any tax which, in your opinion, would operate more fairly?—I should venture to suggest a tax that would involve the principle of a fixed duty per acre, in lieu of the present duty per hundredweight.

2180. What amount would you propose?—£. 3 per acre.

2181. Do you propose it to be an equal duty upon all land?—Yes; that is to say, upon the hops grown by all land. The law must be so worded that the incidence shall not lie upon any land, but upon the crop. Upon all land growing hops I would levy a duty of 3 *l.*

2182. Irrespective of the value of the land?—Entirely.

2183. Whether land let for 10 *s.* or for 10 *l.* an acre, you would impose the same duty?—Yes, undoubtedly.

2184. Sir *Edward Dering.*] Upon what principle would that be fair?—Upon this principle, that the difference which seems so gigantic, when you consider the produce per cwt. of two several acres, or the value in rent, and the injustice which seems so extreme, dwindles to nothing when you calculate it out.

2185. *Chairman.*] Will you give us your calculation?—I will give you a trifling exemplification of it. What I would suggest to the Committee is this; there is an inequality, as I have just said in reply to the question from the Chairman, and a very great one, in charging 6 *l.* hops at the same rate with 4 *l.* hops. Now, that does not seem very extreme, but taking quantities into account, the inequality becomes magnified to a very great amount. But if you take the reverse, the injustice that applies to an average duty vanishes at once. Take the case of 1856, which is fresh in the memory of us all. According to the Parliamentary returns, the average produce of the district known as Mid, East, and Bastard East Kent, (we will call it Mid and East Kent) was 10 cwt. per acre, or within a few pounds of it. Now, I discovered, not from Government returns, because, applying to the market, there are none available for the purpose, but by taking a file of country newspapers, which contain, week by week, the then market value of the different kind of hops, and by taking the series of them at different times, so as to have the market under its different phases, I found that the average figure quoted against them was 91 *s.* as the price at which they were saleable. That I got from the country papers of Mid and East Kent; and if any one would take a series of them, they would see that I took it as fairly as I could. The Government returns represent the average produce of Mid and East Kent for 1856 as 10 cwt. per acre. The market returns, as far as one can at all fairly estimate them, would show the average value to have been 91 *s.* per cwt. Now I think if the Committee will multiply those two together, they will find that the produce per acre was 45 *l.* 10 *s.* upon every Mid and East Kent acre. That was the money return obtained from each acre. Now we will assume that the cost of cultivation all round (though I do not admit it for a second as applying to our own district), was before picking 25 *l.*; we deduct therefore from 45 *l.* 10 *s.*, 25 *l.* for each acre, being the cost before the hops were picked, and we shall find the result of 20 *l.* 10 *s.* Now we have seen from my evidence, corroborated by the authority of the agricultural work which I quoted, and by all testimony, that upon the calculation of 10 cwt., and the last cost of 2 *l.* a cwt., will make 20 *l.* If you deduct that from 20 *l.* 10 *s.*, you will find that so far as this calculation goes, the Mid and East Kent planters last year after paying duty, receive 10 *s.* an acre profit. If the Committee will take the same Government return, they will find that it shows for the Weald of Kent and Sussex altogether, a produce of 12 cwt. an acre, and the same market returns show that the average price of their hops was 72 *s.* 6 *d.*, and therefore the gross money produce per acre was 43 *l.* 10 *s.* If we deduct again the same figure as before, of 25 *l.* for the cultivation (conceding the point), that leaves 18 *l.* 10 *s.* From that you deduct 2 *l.* a cwt. or 24 *l.*, and you will find that the Weald of Kent and Sussex sustained a loss that year of 5 *l.* 10 *s.* Now there are certain cases which that will over-represent, and there are others which it will under-represent, but that will give

Dr. *Monckton.*

25 June 1857.

an idea of the difference in point of return between the high-priced acre and the low-priced acre.

2186. Sir *Edward Dering.*] Are you assuming that the price of cultivation in the high-priced district of East Kent does not exceed the price in Sussex?—I know that it falls short of it. I have already heard the opinion of all East Kent authorities themselves.

2187. Whom do you call "the East Kent authorities"?—Those gentlemen whom I have met at our meetings as representing East Kent in this matter.

2188. Do you speak of your own knowledge in saying that the cost of cultivation in East Kent does not exceed that in the Weald of Kent and in Sussex?—I have every reason to know it; I have calculated it carefully.

2189. Is that your belief?—That is my belief, and it is confirmed by the admission of the East Kent planters. Might I beg the Committee for one moment to place it in a little different light? Instead of deducting 2 *l.* a cwt. for the hops after they begin picking, assume that there is no duty at all, the question being, what is the natural state of things? Then, if instead of 20 *l.* in the one case, and 24 *l.* in the other, we take only 10 *l.* and 12 *l.*, in that case you will see that before they paid the duty they had in East Kent a return, per acre, of 10 *l.* 10 *s.*, and you will see that the Weald of Kent and Sussex had a return, per acre, of 6 *l.* 10 *s.* Now, I ask, is there any wonderful inequality in charging the districts when standing before us *in naturalibus*, without any artificial arrangement, and when, as you see, by the natural course of events, the high-price planter (I do not wish to make it a question of districts) has in hand 10 *l.* 10 *s.*, and the other has in hand 6 *l.* 10 *s.*, is there any reason why the 10 *l.* acre should not bear a 3 *l.* tax as well as the other?

2190. Sir *John Shelley.*] Is there any reason why the man who gets 10 *l.* 10 *s.* should not pay more per acre than the man who gets 6 *l.* 10 *s.*?—It is not for me to say; I would willingly concede them this advantage.

2191. Mr. *Knight.*] You say that in 1856 Mid and East Kent produced 10 cwt. per acre as against 12 cwt. in the Weald of Kent and in Sussex; is not the difference frequently much larger than that?—I should think it is, upon the average. I am bound to say that you will find individual instances between which there is a broader interval, but then you will find those individual instances between which there are broader intervals at home and abroad, and in all plantations; and you must bear in mind the fact, that you cannot impose or dis-impose a tax without leaving these inequalities existing. Under free trade, or under any other system, one acre would still grow 9 cwt. and another 18 cwt.

2192. *Chairman.*] Is there any reason why the Legislature should aggravate that evil?—Not at all. But I would respectfully submit that they do not aggravate it; and the fact that it exists does not ignore the system of taxation.

2193. Mr. *Brand.*] Will you state why you have fixed upon 3 *l.* as the amount of acreage duty to be imposed in lieu of the present duty?—In the first place, I may say that I did not fix upon it. I found it suggested by a statesman, and a very old and energetic friend of the hop growers.

2194. Sir *John Shelley.*] Will you be so kind as to name him?—The late Mr. Thomas Law Hodges.

2195. Are you aware that he stated before the Chancellor of the Exchequer, on one of the deputations on which he was, that the effect of total free trade would be hardly sensible in the cost?—I am quite aware of that, and I can only reply, *nemo omnibus horis sapit.*

2196. Mr. *Wykeham Martin.*] Are you aware of the grounds upon which Mr. Hodges made that proposal to which you have referred?—I mentioned his suggestion as one reason for proposing that measure; another reason was, because it represents about the same amount that we were in the habit of paying before what is called the "war duty" of five or 10 per cent. was imposed. It is a reversion to about the original figure, namely, 1 *d.* per pound; and therefore, as harmonising the views of a large portion of the well-judging and reasonable planters, we ask to revert to that amount.

2197. Sir *John Shelley.*] When you speak of the well-judging planters, do not you mean those of your own opinion?—I speak of them as men, not with reference to this particular point.

2198. Mr. *Brand.*] Are you aware that the acreage duty of 3*l.* involves a large sacrifice of revenue?—I am.

2199. Are you aware that hops are grown considerably in the county of Hereford?—Yes.

2200. Are you aware of the amount of duty paid per acre in that county?—I cannot say that I am; but I have given Hereford all the consideration I possibly can, and I cannot feel it to be a weak point.

2201. In the return which has been laid before the House of Commons it appears that in the 13 years from 1841 to 1853 inclusive, the county of Hereford paid an average duty per acre amounting to 2*l.* 16*s.* 7*d.*; do you think that they would be prepared to pay a duty of 3*l.* an acre?—I must venture to suggest whether there may not be some error in that statement; it may represent the old duty.

2202. It appears from the paper that it represents the whole duty?—Then perhaps the Committee will allow me to submit another answer, which is this: that what price they can have realised, and how they can have existed all those 13 years, I am at a loss to conceive. That statement shows that they grew 3 cwt. per acre; now what price they realised to make that a non-suicidal business I should like to have explained.

2203. Mr. *Knight.*] Supposing the Chancellor of the Exchequer is not willing to reduce the sums received from the hop duty, and supposing that 6*l.* 10*s.* was charged as an acreage duty instead of 3*l.*, do you think that it would be possible to levy such a duty, particularly in failing years?—I have not given it my consideration, because with a retained Customs duty of 45*s.*, and with an acreage duty not exceeding 3*l.* my plan ceases; beyond that I do not go; I do not venture to consider what would occur beyond that, because beyond that there is no justice.

2204. *Chairman.*] Have you taken nothing into consideration beyond Kent and Sussex?—I had not so good an opportunity of judging of the position of the other counties, but I have endeavoured to fathom it. I have found that all the difficulty of an acreage duty does not lie with the high-priced hops. It is true we shall be opposed by able men from the high-priced districts, but they have not a leg to stand upon; with regard to them, the difficulty fades away. But there is a seeming injustice in those districts where they grow a small quantity, and not a very good quality, but that does not apply to Hereford and Worcester, for I believe that under-cropping with fruit or corn prevails there to an enormous extent; that is to say, the hops are a secondary crop, and therefore do not fairly represent what they can and do grow per acre.

2205. Sir *John Shelley.*] Did I rightly understand you to say that you were confident that you should be opposed in your views with regard to the plan of an acreage duty by the high-priced cultivators?—Yes.

2206. Have you met with opposition to your scheme from the low-priced cultivators as well?—I must say that we have. But perhaps the Committee will allow me to explain the opposition in each case; because the term "opposition" has not a mathematical precision. The truth is, that the high-priced planters to whom I allude have very little to say against our plan, except that they feel that it would deprive them of a monopoly which they now enjoy, and they are perfectly right in saying that if this plan of an acreage duty were adopted it would deprive them of protection; it is a fact that the high-priced planter is doubly protected, first by a differential duty as against the low-priced planter at home, and secondly by a differential duty as against foreigners.

2207. Do I rightly understand you to say, that the present duty is looked upon by the high-priced planters as a monopoly?—No, I did not say that they looked upon it as such.

2208. Do I rightly understand you to say that the high-priced planters object to your scheme, because they would rather have things remain as they are, looking upon the present system as being a kind of monopoly?—I have stated what are their actions; I do not presume to speak as to their motives.

2209. But that in the event of an alteration taking place, they have no objection to an equal fixed rate per acre with those who grow the inferior class of hops?—I think I am justified in saying so; at least that is my opinion; but it is for them to state their own views here.

2210. Are you not opposed in your scheme by the low-priced planters?—

Dr. *Monckton.*

25 June 1857.

For this clear reason, that they are growing a large quantity of hops; we are not opposed by the low-priced planters generally.

2211. How have your views been met in the Weald of Sussex?—We have experienced immense support there. We have carried large majorities at meetings most fairly conducted, and with questions most fairly put by their own planters. I think there are certain facts which constitute fairness, such as submitting before a chairman of the locality questions proposed and seconded by people from the locality.

2212. Were there any meetings held in the county of Sussex, opposed to your scheme, where the resolutions have been fairly put?—I am almost tempted to say no; there have been meetings held in favour of other views, but not against an acreage duty.

2213. Sir *Edward Dering.*] Would not that be the same thing?—Hardly so. This is a very important matter, because it might give the Committee the idea that they will disoblige a large number of people if they recommended an acreage duty; that is not true; there are many people whom they would oblige more if they gave them another thing; but those people would accept thankfully an acreage duty, though they would like something else better.

2214. Sir *John Shelley.*] Are not those who would accept thankfully an acreage duty of 3 *l.* per acre, provided any alteration takes place, the high-priced cultivators?—I believe they would accept it; but still I am not an exponent of their views.

2215. Is the Committee to understand that they would rather have things remain as they are; but that if things are changed, they would rather have an equal acreage duty with the poor lands?—That is my impression from meeting them in different meetings, and from the other means I have taken.

2216. Have there not been meetings in the inferior districts in favour of substituting a fixed duty?—Several, and also in favour of other plans.

2217. Mr. *John Locke.*] Have not there been meetings in favour of taking off the war duty, as it is called?—There have been of late, but I do not think that that is a criterion.

2218. *Chairman.*] Was not there one in Westminster?—That was not held to promote anything of the sort; but I know nothing of that meeting.

2219. Was not that held to promote an acreage duty?—Not at all.

2220. Sir *John Shelley.*] Did not you call that meeting yourself?—I did.

2221. How is it that you say that you know nothing of the meeting?—Simply because I had been invalided for a time, and was not able to be present.

2222. Have not you seen reports of it, and attended meetings since?—Clearly; and so far I know it.

2223. Mr. *John Locke.*] Does not your plan amount to this, that you would leave the foreign duty as it stands, and take off rather more than one-half of the Excise duty on English hops?—That is precisely it.

2224. Is not the plan of taking off the war duty in effect equivalent to yours?—If it is not absorbing too much time, I should like to show the difference between the two.

2225. Do not you think that the hop growers would accept one as readily as the other?—No, I cannot conceive that point; because there are many features of difficulty about our position now which the abolition of the war duty would not remove. In the first place, we are subjected (but I do not complain much of that) to the supervision and intrusion of the excisemen; in the next place, we are put to a disadvantage, as we conceive, by the present mode of collecting the duty every year. The Government puts out an account of the duty, which may act for the merchants and against us in an antagonistic way, as they are supplied with full details, which they can avail themselves of, but which our habits of life do not enable us to take advantage of; and also, although we do not dwell upon it, as we do not inaugurate our movement with any invidious feeling towards the high-priced planters, for many of us have become high-priced planters ourselves, we think that now that a movement is contemplated the question of equality should be discussed, and if we are to revert to money, the fact of the inequality of a penny upon hops worth 6 *l.*, and a penny upon hops worth 4 *l.*, should be diminished.

2226. Sir *John Shelley.*] After your answer, may we not call you a high-priced cultivator?—No, I am simply endeavouring to speak fairly for all interests.

2227. Mr.

2227. Mr. *Edward Dering.*] You stated that, according to your belief, the majority of the high-priced planters, if there were a moderate acreage duty, would assent to it?—Yes.

2228. Are you aware that there was a large meeting of East Kent planters held at Canterbury upon the subject?—Yes.

2229. Are you aware that one of the resolutions unanimously passed at that meeting was, that the substitution of an acreage duty would be prejudicial to them?—I quite understood it.

2230. Upon what ground do you say that, according to your belief, the high-priced planters would, as a body, agree to an acreage duty?—Very much from conversations, and from my personal observation and personal knowledge, and from the discussion before that meeting, and a considerable number of other discussions. I have formed an opinion somewhat the reverse of that expressed at Canterbury, and I cannot divest my mind of the belief that the opposition at Canterbury was not directed against an acreage duty, but against alteration in any shape. There is a great difference whether you go and agitate the question, or whether you ask those men whether they will have free trade or an acreage duty.

2231. Are not you aware, that at that meeting the question of an acreage duty was discussed, and that a resolution was passed, stating that the substitution of any acreage duty would be most prejudicial to their interests?—Yes, I admitted by anticipation that it is adverse to their interests; I know that it is adverse to their interests.

2232. Sir *John Shelley.*] Do not you mean that it is adverse to their interests as compared with the present system?—Clearly; but it is not adverse to their rights; they have not a right to have a better position than others. I can adduce able, experienced Mid Kent high-priced planters before the Committee who shall say that their feeling is just what I state, and that their interest is to stand still; but I apprehend they have no right to stand still; and they will tell you that, if you move, an acreage duty is the fairest way of assisting us.

2233. Mr. *Brand.*] In a year of blight, do you think that this acreage duty would be willingly paid?—Undoubtedly. In a year of blight now we have to pay an equivalent to it. Assuming that in 1855 we had a heavy crop, and in 1856 we had a blight; out of the produce of that blight the last heavy section of the preceding year's duty is to be paid, and that amounts to 3 *l.* an acre.

2234. Supposing two planters to grow side by side; the one grows a good crop and the other a bad one; do you think that the second would be willing to pay the duty?—I think even farmers are beginning to learn how to strike an average between two and six, and they know it comes to four; and they understand that, if they pay fairly upon the average, it does not matter between one and the other.

2235. *Chairman.*] Do you know what the duty charged per acre is in the county of Hereford?—I am not prepared to answer the question as put to me, whether I am aware as to what the charge per acre has been for 17 years.

2236. Have you considered the average charge per acre in Canterbury, Kent, and Mid-Sussex?—Yes.

2237. Have you at all taken into consideration what proportion of acres in the county of Sussex pay more than the average, and what proportion pay less than the average?—I cannot say.

2238. You are content to take a general average?—I can see in my mind that there are outlying districts that do not pay that; but I know there is such a thing as calculation; one man cultivates and another does not.

2239. May we conclude that, although you have had in sight a system of equality, you did not take that point into consideration?—I do not think the last acre is to be taken into consideration; but if you look at this, it is most important with reference to Hereford and Worcester. I have learnt in the Borough this day that the average of last year (they were blighted this year), was 9 cwt. an acre; although I was not prepared to answer the question as to the average duty paid by Worcester and Hereford for 17 years, I have ascertained what was paid last year, and I have learned that it was 8*l.* 3*s.* 6*d.*

2240. What collection are you speaking of?—The Worcester collection of 1855. In 1856 there was a blight in that district, and therefore, unluckily, that forms no criterion.

Dr. *Monckton.*

25 June 1857.

2241. Was not 1855 a year of unusually large crop?—It was as I am informed; but that hardly applied to that district; it did not exceed the usual average; that I am prepared to give upon my authority.

2242. What was the duty for all England that year?—Nearly 400,000 *l.*

2243. Are you speaking of the old duty?—Yes.

2244. Was not that the year of the largest crop ever known?—It was; but I took pains to ascertain whether Worcester did enjoy a proportionate increase, and I was told it did not; that is to say, that previous averages were up to that year. Will the Committee allow me to suggest that you assume their duty to be 18 *s.* per cwt. I am told that in many years their hops are worth 5 *l.* when ours are worth 4 *l.*; so that you would find that the difference is excessively small; even supposing that they have no under crop, and that they cultivate as we do, and put as many hills to the acre.

2245. Mr. *B. Hope.*] There are 1,200 hills to an acre in the county. I am given to understand that there are only 1,000 in Hereford; is that so?—I am told so. The general point is that the more you argue about the acreage duty, the more the inequalities wane away.

2246. Sir *Edward Dering.*] Are you aware what the amount of the present duty comes to per acre?—Yes.

2247. Are you aware that it will come to 6 *l.* 10 *s.* an acre?—Yes; I am aware that it is over 6 *l.*

2248. Supposing that an offer were made to commute that present duty in favour of your scheme of an acreage duty, but that the Chancellor of the Exchequer said that he must have the same amount of revenue, and that, therefore, if it were offered to you to have an acreage duty of 6 *l.* 10 *s.*, would you accept it?—Clearly not.

2249. Would it be against your interest?—Entirely; and also against my judgment.

2250. Would you prefer the present duty?—We have given up that idea; we hardly admit the possibility of standing still; but I am not certain that that is an improvement upon our present position; we might not reject it, but certainly we should not come up to London for it, the favour would be so small.

2251. Do you think that that would not meet the wishes of the planters?—Clearly not, because the acreage duty does not include the idea of commutation alone; but I started by declaring my most positive belief that we pay vastly too much at present; an acreage duty of that amount would only meet the subordinate fact that we pay unequally.

2252. Assuming that the system were to be changed by Parliament to an acreage duty, and that you were still to pay 6 *l.* 10 *s.*, would you or would you not rather remain as you are?—I cannot say; my impression is, that we had better do nothing; I am not prepared to accept that plan, unless the Customs duty were doubled.

2253. *Chairman.*] You have stated that, in your opinion, you pay a great deal too much?—We do.

2254. Are you of opinion that the planter in many years pays the duty out of his own pocket?—Most unquestionably; the producer pays the duty when the duty does not limit the supply. The cost of production is naturally subordinate to the ruling cause and greater influence of supply and demand. It is only when supply and demand are entirely out of the field that the cost of production has anything to do with the price of hops.

2255. Mr. *Knight.*] The whole of that plan is based upon the belief that there is very little difference in the amount produced per acre, between the valuable and the coarser kind of hops, which you made out to be in the proportion of 10 to 12. Do you think that that estimate is correct?—That is an important point. I draw the attention of the Committee to that fact, which they will find to be taken from the Government returns. There are discrepancies, but those are individual discrepancies, and they affect the character of the low-priced as well as of the high-priced hops.

2256. Do not you think that upon the average of years, the crops of Grapes, Colegate's, and Jones's, are considerably more than the crops of Golding's?—I do not believe it to the extent usually represented.

2257. Do you base your plan upon the assumption that 1 *s.* 6 *d.* is the usual difference between the coarser and finer sorts of hops?—Not altogether.

2258. Have

2258. Have you formed an opinion on that subject?—The truth is this; we have not to deal with the quantity grown in the year, which seems a large question and admits of discrepancies, but we have to deal with the narrow subject of profit; and it is upon that profit that all the taxation must be based.

2259. Sir *Edward Dering.*] Must not the profit very much depend on the quantity grown?—Clearly; but then comes the question of quality and expense incurred.

2260. You have stated that you have obtained the difference of two cwt. between the high-priced and the low-priced hops from the Government returns?—Yes.

2261. Are you aware that, in the Canterbury collection, a large portion of the Weald of Kent is included in the Canterbury collection?—The return on which I base the calculation distinguishes the Weald of Kent.

2262. Are you aware that a large portion of the Weald of Kent comes within what is called the Canterbury collection?—Possibly it does.

2263. Are there any of what you call high-priced hop growers in the Weald of Kent?—There are some.

2264. Do you mean to tell the Committee that the best sorts of Canterbury Grapes hops are commonly grown there?—They are not commonly grown there, but there are some.

2265. Does that enter into the general amount of produce?—Yes; but it is a mere question of margin, and we leave a margin on one side and on the other. I think there is enough of superior hops grown on this part of the Weald of Kent to balance the quantity of inferior hops in the Canterbury collection.

2266. Are you aware of the number of acres in the Weald of Kent?—Yes, it is 8,000.

2267. If there are included in the return 8,000 acres which grow a large quantity of inferior hops, does that convey a very just notion to the Committee of the high-priced hops?—No; but my calculations are based upon a return which excludes the Weald of Kent from the Canterbury collection. Here I have Mid-Kent, and East Kent, and bastard East Kent; and here is the Weald of Kent upon the opposite side. I combine that with Sussex. The Weald of Kent is contrasted with Mid and East Kent.

2268. Sir *John Shelley.*] Putting your plan of a 3 *l.* acreage duty on one side for the present, would you prefer that the present system should continue as it is, or that you should have a 6 *l.* 10 *s.* acreage duty, or that you should have free trade, the Customs and Excise duties being taken off altogether?—If it is competent for me, and not disrespectful, I should decline to answer that question.

2269. You have given very strong evidence in favour of the 3 *l.* acreage duty?—I have upon many reasons, not a tithe of which I have had an opportunity of expressing.

2270. As you have studied the subject, the Committee are anxious to know whether, in the event of our not being able to carry out your alteration in favour of the 3 *l.* acreage duty, you would prefer that things should remain exactly as they are, or that you should have a 6 *l.* 10 *s.* acreage duty, which is equal to what is now brought into the Exchequer, or that you should have the Customs and Excise duty taken off?—I should think the three alternatives deplorably bad; but, of the three, I should choose the acreage duty of 6 *l.* 10 *s.*, because I should hope that, in a very few years, we should get it down 50 per cent.

2271. Mr. *Brand.*] Are you aware that in some of the collections the average amount of duty, for a succession of years, is double what is paid by others?—Yes.

2272. Do you think that those who paid the small amount of duty would be willing to pay the acreage duty?—I do not think the duty that they have been paying, or the quantity of hops that they have been growing, has anything to do with it. If you show that one district is less profitable than another, I confess that they ought to have less taxation; but I do not think the price of the hundredweights produced per acre has anything to do with it.

Mr. *Patrick Simpson Punnett*, called in; and Examined.

Mr. *P. S. Punnett.*

25 June 1857.

2273. *Chairman.*] YOU are a Hop Grower of some experience, I believe?—Yes, from Mid-Kent; from the neighbourhood of Maidstone.

2274. How many acres do you farm?—I have not many acres of hops. I think I have 22 acres in plant at this present time.

2275. I believe you have been a hop grower for a great number of years?—I have not been a hop grower for a great number of years; only since the year 1842.

2276. Do you fall within the Rochester collection?—Yes, I am in the centre of it.

2277. Is the land which you farm on the hills near Maidstone?—Yes, I farm only on the Ragstone Hills; I have no land anywhere else.

2278. Were you in the room when Dr. Monckton gave his evidence as to the expenses of cultivation?—Yes, I was.

2279. Is there any difference in any of those items in your cultivation?—I did not catch the details of it. I have a statement here from which I can give any information upon that point. I make out that it costs us to cultivate hops up to the time of picking 26*l.* an acre, and that the expenses of getting the hops to market, including the payment of the duty, amounted to 2*l.* 4*s.* per cwt.

2280. Could you give the Committee the items of that 2*l.* 4*s.*; how much do you make the duty, for example?—The duty amounts to a fraction within 18*s.* I have here a statement that I have taken out of my books of the costs, which I have in detail. I have a statement which proves the total amount paid for the whole expenses, and I divide that by the number of acres grown, which brings it to 2*l.* 4*s.* exactly per cwt.

2281. What do you put the expenses of picking at?—It entirely depends upon the crop, and how the hops hang, and so on; that is, perhaps, the most varying expense that we have to encounter in realising the crop.

2282. Within what limits does it vary?—Sometimes we get the hops picked for 11 bushels to the 1*s.*, and sometimes we get only five picked for 1*s.*

2283. In what years do you pay the most, in the abundant years or in the scarce years?—We undoubtedly pay more in the heavy years, because there is a much larger quantity to be done in a given time.

2284. Are there not greater demands for labour in such years?—There are greater demands for pickers. They can do more as they like; they strike, and that sort of thing.

2285. Can you tell us what you paid for picking in 1855?—No, I have no information of that sort by me. I have a statement here, that in 1848 my pickers cost me 59*l.* 12*s.* 4*d.*, and that they had beer to the extent of 5*l.* 10*s.*, that is, 65*l.* 2*s.* 4*d.* for 120 cwt. of hops. It was an average crop of 7½ cwt. per acre, of hops. That is about the average expense for Mid-Kent.

2286. Mr. *Brand.*] Have you the items of the cost in 1848?—Yes.

2287. Will you state them to the Committee?—First of all we start with 16 acres of land. I grew 120 cwt. of hops, which was 7½ cwt. per acre; the measurers and the binemen cost 13*l.* 10*s.*, and the pickers, 59*l.* 12*s.* 4*d.*; and beer for these pickers and binemen, 5*l.* 10*s.* The driers cost 8*l.* 14*s.*; the beer for them was 1*l.* 10*s.* Then there was for fuel and brimstone and some charcoal, which was extra fuel, 15*l.* Then the carriage of the brimstone, and the fuel, and so forth, and of the hops to the station, was 7*l.* 10*s.*; those are the sums that it positively cost. The cloth in which the hops were packed cost 14*l.*; the duty was 106*l.*; and to the expenses of sale, and of getting the hops to market, and so forth, and of keeping them in hand up in town in a warehouse, were 25*l.*; and there was a loss of weight equal to 3*l.* 10*s.* at the price at which the hops were sold; in sluggish years the hops seldom weighing so well when sold as the Excise weight. That will come out at 2*l.* 4*s.* per hundredweight.

2288. You mentioned 16 acres; was that the extent of your growth in that year?—Yes. In 1847, from the very disastrous prices, and also from there having been a great deal of blight about, I grubbed a large portion of my plantation.

2289. Why did you pick out the year 1848 as the one on which to make your statement?—I picked out the year 1848 because it was about an average crop; and inasmuch as the price had nothing to do with it, that gives the result of the average expenditure for picking an average crop of hops. That statement was not made to bring here, it was made to substantiate some statements I made

made to the Chancellor of the Exchequer in 1849; and having them handy, and finding that the Committee had some difficulty in getting information upon that point, I copied them last night.

2290. Do you consider that at all a high estimate?—No; it is about the usual sum. I have enquired of many of my neighbours, and I find they all put it at from 2 *l.* 4 *s.* to 2 *l.* 6 *s.* for the crop, for what they call picking, drying, and duty in our district.

2291. Sir *Edward Dering.*] What are your wages as compared with Sussex?—We pay higher wages, undoubtedly. Our wages are now 2 *s.* 3 *d.* and 2 *s.* 4 *d.* a day.

2292. Mr. *Wykeham Martin.*] What is your extraordinary charge for tithe?—Our extraordinary charge for tithe is 15 *s.* an acre.

2293. Do you know how much it is in adjoining parishes?—I should say we are rather low; the adjoining parishes are higher than that.

2294. Up to what sum do they go?—Up to 19 *s.*

2295. *Chairman.*] Is that the highest in your neighbourhood?—I know of nothing higher than 19 *s.*

2296. Do you know of anything lower than 15 *s.*?—I know of nothing lower than 15 *s.*

2297. Mr. *W. Martin.*] Do you know what it is in my parish of Leeds and Broomfield?—I do not.

2298. *Chairman.*] What is the rent of the land upon which hops grow in your neighbourhood?—I should say the generality of hop land is worth from 3 *l.* to 3 *l.* 10 *s.* a year. I occupy my own freehold, and I pay no rent.

2299. Is that the rent of land of a similar kind to yours?—Yes.

2300. Did not you say that your average crop was about 7 cwt.?—Yes.

2301. Mr. *John Locke.*] Would the sum that you have named be the rent of the whole farm?—No; only the rent of the land on which the hops grow.

2302. Sir *Edward Dering.*] Is 7 ½ cwt. an acre a fair estimate of the average growth of the description of hops that you grow?—I think it is rather high. Since I have been a planter, they have not grown so many as 7 cwt. right through in my district.

2303. What should you say was a fair estimate of the average growth of the best description of hops in your district per acre?—I should say from 6 cwt. to 6 ½ cwt. I have often heard that mentioned as about the average.

2304. *Chairman.*] What kind of hops are especially grown in your neighbourhood?—We grow a large portion of Golding hops and a small portion of the inferior kinds of hops, particularly Jones's. That is a matter of economy in this respect, that we want larger poles for the Golding's hops; and they last a certain number of years, and then the foot rots off, and then the pole becomes shorter, and we make use of it for a lower-priced hop, which does not require so long a pole.

2305. Can you tell the Committee what is the difference in price between the Jones's and the Golding's?—It differs very much upon the acre; my growth generally is sold together, and there is no distinction made. I get an average price for my hops. Whatever the proportion of the Golding and Jones's may be, they are all on one board, and those who buy them know what they are. They generally ask me how many Golding's and how many Jones's I have, and I tell them; but I have never had a separate price quoted for the two different sorts.

2306. Do you sell the whole of your growth?—Yes; it generally goes together.

2307. Do you not sell the separate pockets?—Of course, they are packed in separate pockets.

2308. Do you sell a single pocket?—I never heard of such a thing; all my growth goes together. It is rather the custom with the Mid-Kent growers that the sale of the whole growth that a man produces in a year is one transaction with the buyer. The hops are spread on boards, and they look at the samples, and judge exactly by the samples. If they want any information, they ask how many Golding's and how many Jones's there are, and I tell them.

2309. Sir *Edward Dering.*] Do they mentally set so much upon the Jones's and so much upon the Golding's, and strike an average?—Certainly.

2310. Mr. *Brand.*] From your experience, could you tell the Committee what is the difference of price between the Golding and the Grape hops?—It is a very vague question; Golding hops are more subject to blight and mould in our district

Mr. *P. S. Punnett.*

25 June 1857.

district than others. It sometimes happens that we get Grape hops perfectly good, and in the same place we have Golding hops much diseased.

2311. *Chairman.*] What should you say would be the difference per cent. in the value between the two hops?—I should say probably there was one-fourth difference in the value of them.

2312. Do you mean to say that if the Golding's were selling at 5 *l.*, the Grapes would sell at 75 *s.*?—Yes; the first question was with regard to Jones's, not to Grapes.

2313. Can you tell the difference between the Golding's and Jones's?—The Jones's would fetch a rather higher price than the Grapes; they would be intermediate between the Grapes and Golding's in my district.

2314. Do you grow any of the Colegate hops?—No.

2315. Are there any grown in your neighbourhood?—Very rarely. Upon our soil we do not grow Colegate hops to the same advantage as they can elsewhere; we cannot get so large a crop.

2316. What is the hop mostly grown in your district upon your sort of soil?—The Golding hop.

2317. Mr. *Brand.*] Assuming the price of Golding's hops to be 100*s.* per cwt., and the price of Grapes 75 *s.*, at what should you put the price of the Jones's?—About half way between them; you must bear in mind that the soil does a vast deal to improve the quality of the hops; we grow Jones's of much better quality than they grow them in the Weald of Kent; we cannot grow so many of them, but we grow them of a better quality. So it is with Grapes; I had some of the coarsest kind of Grape hops from Sussex, where they are in the habit of growing large crops, planted in my ground, and I grew them small; I could not get many of them.

2318. Is the quality of them better?—Those Grape hops are better than ordinary Grape hops; they fetch more money.

2319. Sir *Edward Dering.*] Which of the two are most subject to mould?—The Golding's decidedly; we often go through a blight with the Jones's and the Grapes when the Golding's are much blighted.

2320. *Chairman.*] Has there been any diminution in the cultivation of Golding's of late years in your districts?—I should say that there has been rather an increase of late years than otherwise.

2321. While they have increased, has the cultivation of the Grape hop diminished?—Yes. I have no Grape hops, and I know others who have grubbed the Grape hops.

2322. Is the Golding more subject to blight than the Jones's and the Grape?—The Golding is more subject to blight than the Jones's and the Grape.

2323. Why has the cultivation of the Golding been increased and the cultivation of the Grape been diminished?—Because there is a better demand for the Golding hop; they have commanded rather better prices than others of late, and we can grow good Golding hops, which they cannot do everywhere; it is a hop that seems adapted to our soil better than any other kind.

2324. Mr. *W. Martin.*] Do you agree with the statement that has been made to this Committee, that the Golding hops of Mid-Kent have been of late rather deteriorated by over-manuring?—I think it is a mistake to say so. In Mid-Kent I think people may carry manuring to that extent that they get into mould, and the hops are deteriorated. We get quantity at the expense of quality if we manure too highly.

2325. Mr. *Brand.*] Has it been the practice in your neighbourhood?—It has been the practice in our neighbourhood, which some have found out to their cost, and have left off.

2326. Has the average number of hundredweights grown to the acre increased of late years?—There is no material difference noticeable of late. They are that sort of thing that no man can strike an average.

2327. Should you say that from the greater expense of cultivation, and the great application of manure, the produce per acre has increased?—Undoubtedly, as to quantity.

2328. Mr. *W. Martin.*] And at some expense of quality?—Almost entirely at the expense of quality.

2329. Sir *Edward Dering.*] In your opinion, has this increase of manure rather increased the occurrence of mould?—Undoubtedly.

2330. *Chairman.*] Are not you liable to seasons of distress in the hop districts?

tricts?—Yes; we are like all other people. With heavy crops and low prices we have not the same returns, and we reduce the expenditure in every way that we can to meet the consequences.

2331. In what years is that generally the case?—In the largest cropping years, which are necessarily the lowest priced years.

2332. Do not you cultivate for an abundant crop?—No; we cultivate without the slightest notion of what we are going to produce; we cultivate the same every year; I never make any difference in the management of my hop land. It is one of those things in which we cannot in any way foresee the result of our proceedings, and we go on the same, hoping for the best.

2333. Do you cultivate your land to the best of your ability to produce a good crop?—Yes; every year I do the same.

2334. How do you account for it, that when you have obtained the object of your wishes, a good crop, it is a season of distress?—By a good crop, I mean a large crop. We then have a large crop, and a limited demand for hops in the market by Act of Parliament. I should boldly say that the malt tax limits the demand for hops. If we have a larger supply, and the quantity consumed is the same, the necessity is that they go down in price.

2335. Mr. *W. Martin.*] Are not a great many actually unsaleable in such years?—Yes. There is a large pressure of hops upon the market at the time, and as a matter of course the supply being more than equal to the demand, they go down in price.

2336. Do you hold over the year, notwithstanding the loss in quality which it causes?—They deteriorate in quality, and sometimes lose value; but it does not follow that the price of good yearling hops is less than the price of the same hops was the year before.

2337. *Chairman.*] How much do they lose in value by the circumstance of a year's keeping?—That is a matter that I have hardly had the means of testing; but I should say that they deteriorate from 6 to 10 per cent. in their quality.

2338. Is there any difference in the different kinds of hops as to that?—Yes, the better class of hops do not deteriorate so much in quality as the inferior ones.

2339. Mr. *W. Martin.*] Do you mean that the Golding's deteriorate less than Grapes, or that good Golding's do not deteriorate so much as bad Golding's, and good Grapes less than bad Grapes?—Golding's will deteriorate less than Grapes.

2340. Good Golding's deteriorate less than bad Golding's, and good Grapes less than bad Grapes, and Golding's will keep better than Grapes?—Yes.

2341. *Chairman.*] You have said that you have no opportunity of testing the deterioration; do not you keep your hops?—Yes; but that is a test which the copper only can prove.

2342. Does not the price test that?—Not in the least; you must make a distinction between deterioration in quality and depreciation in value.

2343. Does not the deterioration of the quality of hops depreciate the price?—It does not depend upon that in the least.

2344. Mr. *W. Martin.*] Is it not the fact, that sometimes if a year of large growth is succeeded by a year of small growth, the additional value given to the hops in the year of small growth fully compensates for the loss in value from keeping?—Yes. Suppose I kept my hops over for a year, and I had them now, and this year turns out to be a blight, and I hold last year's crop on till the season comes on when the new hops ought to be in the market, and there were very few of them, my hops a year old would be much more valuable comparatively to the hops sold under the same circumstances in two good crop years occurring in succession.

2345. *Chairman.*] Is not that a case in which the question of supply and demand comes in?—Nothing else regulates the matter.

2346. Supposing hops of the same kind and the same degree of excellence to be sold, one part of them in the first year, and the other part of them in the second year, what would the difference in price be?—That is a question which it is impossible for any man to answer.

2347. Do you mean that supply and demand always fixes the price?—Yes, irrespective of the quality of the hops, or what they may lose as to their brew-

Mr. *P. S. Punnett.*

25 June 1857.

ing qualities. The price at the time they are sold is entirely dependent upon the supply and demand at the time.

2348. Have you never had two successive years in which Golding hops sold at the same price?—You may suppose that case.

2349. Supposing that to be the case, what would be the difference of price of the new hops and the hops of the year before, of the same quality?—I can hardly answer that question; I do not know.

2350. Mr. *Ball.*] Is not this just the fact, that if you have a large quantity coming upon a small quantity, the large quantity knocks down the price in the market?—Yes.

2351. What did you say just now about malt?—What I mean by what I said is this, that the heavy malt duty naturally prevents any increase in the quantity of malt made annually; the statistical returns prove that; and therefore we have a limited market for our hops.

2352. Then, therefore, the heavier the duty upon malt, the less the consumption will be?—Yes, I think that can be readily proved by reference to a return which I have here.

2353. Mr. *Brand.*] Supposing the supply and demand equal in two successive years, will you state what would be the depreciation of price of the same quality of hops in the second year?—I cannot tell you that; it is a thing as to which in my own experience I have never had anything to guide me in my judgment; I hardly ever hold my hops over. I am one of those who prefer selling when I can.

2354. *Chairman.*] Are not your hops of a good quality, which can always command a good price?—They are a pretty good quality for the district; they are better than they used to be.

2355. Do you find that you can in every year command a sufficiently good price for your hops to induce you to sell them?—Yes; I think that hops, upon the whole, pay about as well as anything else.

2356. Mr. *W. Martin.*] Do not you take an active part in the management of a company for the sale of hops?—Yes, I am chairman of the company.

2357. Have you had in that capacity the care of selling the hops of other growers?—Yes.

2358. Does your knowledge, acquired from that, throw any light upon that question?—No; there are others that can give better information than I can.

9359. Mr. *Ball.*] Did not you say, just now, that when you had an abundant crop of hops it was generally adverse to you?—Yes; that is the case.

2360. Is not the duty the same per cwt. when you have an abundant supply as when you have a small supply?—Yes.

2361. Then if you have a large quantity of hops grown, and the price of those hops is much diminished, and you have the same duty to pay, is not it most oppressive upon you?—Yes; the duty then becomes much more oppressive than it does in other years.

2362. Could not a remedial measure be adopted in the mode of taking the tax?—I could suggest half-a-dozen, which some people would call remedies; I should say that the remedy that would meet with most general approval, would be a reduction in the amount of duty, on account of its oppressiveness to us.

2363. Sir *Edward Dering.*] Do you refer to the old duty?—I refer to the old war duty of a penny per lb. on hops; that would be the thing that would answer best.

2364. With the Customs duty remaining as it is?—With the Customs duty remaining as it is.

2365. Mr. *Ball.*] Supposing there were 80,000 lbs. of hops in one year, and 160,000 lbs. in another, and the duty were 3 *d.* a pound in one case, and 1 ½ *d.* in the other, so that the revenue would be the same in both cases, inasmuch as when the amount was double the Government would get one-half, what should you think of that scheme?—I think it would be a good suggestion. I have discussed that with others, and I think, although it is hardly right to put up one's own opinion, that it would meet all the difficulties to have a graduated duty; that is to say, the duty represents quantity; it is a fixed charge per lb. or per cwt., and it fixes the quantity. Supposing that we had a duty of 150,000 *l.* of old duty, as it is called, then you would put the duty at 1 *l.* per cwt.; and if we got 200,000 *l.* old duty, I would put it at 15 *s.*, and so on,

on, in the same ratio, so that the same amount should come to the Government every year, and that we, the planters, should reap some benefit by having a less duty to pay when there was less amount to pay it with.

2366. Would not that meet the difficulty which you feel?—I feel satisfied that it would.

2367. Do you think it is a good idea to amend the tax in that way?—Yes, I think it is.

2368. Mr. *Brand.*] Do I understand you to recommend that whenever the crop is a short amount, the duty should be higher?—I think I did explain to that effect; I mean that to be the case.

2369. *Chairman.*] Would it be according to the price?—The crop would be the rule to adhere to.

2370. Mr. *Brand.*] The smaller the crop the larger the duty per cwt.?—Yes.

2371. Mr. *Ball.*] Supposing there were 80,000 lbs. of hops returned 3 *d.* a pound upon, that would not give you a greater amount upon the whole tax than if you had 160,000 lbs. at 1 ½ *d.* per pound; and the idea suggested is to have the amount paid per pound governed by the quantity to be grown; if that was to be the case, would not it relieve you of the oppression which you feel when you have an abundant quantity of hops, and the price is much reduced, and you have the same amount per hundredweight to pay as when the prices of hops were greater?—I think the suggestion is a good one, and I cannot see that it is open to any difficulty.

2372. *Chairman.*] Have you ever considered such a scheme before?—Yes, I have.

2373. Has such a scheme as that been discussed?—Yes; I remember discussing it with Mr. Hodges himself, and lately one or two gentlemen have mentioned it to me, and I have looked into it, and I can see no practical difficulty in it. It is not a new scheme: I have thought of it a good deal. I think it is a very practicable and a very good one.

2374. I think you said that, generally, the hops of your district command a good price?—Comparatively they do.

2375. Is it not the fact that the distress is not so great with you as it is with some other districts?—I do not think that that follows.

2376. You have told us that, generally speaking, hops in your district command a remunerative price?—A sufficiently remunerative price to induce us to keep on cultivating them.

2377. Have you never had seasons of general distress?—Yes; 1847 and 1848 were years of general distress, where every section of the planters from Worcester, Hereford, and everywhere, sent a memorial up to the Chancellor of the Exchequer, to get an alteration, if they could, in the duties, or to get the payment put off a little longer.

2378. Was that distress attributed solely to the abundance of the crop?—It could be traced to no other cause but that. From the fact of there being three or four consecutive years of large crops the supply was so large that there was no means in consequence of the limited demand of disposing of it. A certain quantity of malt only being turned into beer every year, that quantity limited the demand for hops, which were over-supplied; it brought down the price, and we lost a great deal of money.

2379. What was the amount of duty paid in those years?—£. 216,000 and 212,000 *l.* old duty.

2380. Do you think that in those years the duty fell upon the producer of the hops?—Entirely fell upon the producer of hops in those years; those being years when he could not get back the duty in the price of his commodity, the duty was entirely paid out of the planter's pocket.

2381. Do you think that he did not recover the whole of the expenses he had been put to in producing those hops?—Irrespective of the duty, there was still a margin left that he could not recover.

2382. Mr. *W. Martin.*] When a very large crop is grown is not there a considerable excess above the consumption of the country?—Yes.

2383. Is not the excess frequently incapable of being kept, so that it is wasted?—Some hops are kept so long that they really are useless; a large amount of hops in our warehouses as a company are worth nothing.

2384. If this hop duty is paid and the planter of those hops never gets a farthing

Mr. *P. S. Punnett.* a farthing return upon those hops, has he not clearly paid the duty out of his own pocket?—Yes.

25 June 1857.

2385. According to a kind of graduated scale, in one case the planter would pay half, in another year he would pay three-fourths, and at last the time would come in which he gets the duty back?—I look upon duty as simply an item of cost in the production of the crop; it is the last amount paid; if a man gets back in the price of his produce per cwt. what it has cost him, duty included, then clearly the consumer pays the duty; if, on the contrary, he cannot get back the cost of his produce, one of the items of which cost is the duty, of course it is the other way.

2386. Sometimes he loses the whole of the duty, and sometimes a portion, and in other years he gets it back?—Yes.

2387. *Chairman.*] Does not the duty considerably increase the cost of production?—Undoubtedly; to the extent of 18 *s.* per cwt.

2388. Does not it naturally very much increase the risk of loss in the business that the planter enters into?—I do not see that it increases the risk; it is a certainty.

2389. Does not the duty add to the cost of production?—Yes.

2390. And in an abundant year, does not he lose the duty?—Whenever he does not get back the cost of production, he loses the same amount per cwt., because there is so much a hundredweight for duty, and so much a hundredweight is lost in the price of his commodity. The amount of duty never varies, except as to the quantity grown per acre.

2391. Did not you go up to the Chancellor of the Exchequer with a deputation in the year you spoke of?—I took an active part in it. I was chairman of the committee, and had the management of the case.

2392. Did not those gentlemen who went up to the Chancellor of the Exchequer attribute the distress which existed in the hop districts to the duty?—Certainly not; not entirely to the duty, because the suggestion they made to the Chancellor of the Exchequer was, that he should only reduce the duty one half. The whole of the planters of the kingdom were unanimous at the time in asking for the alteration, and that he should reduce the duty to 1 *d.* per pound. It is the only time, to my knowledge, they ever were unanimous in anything.

2393. I have a report of what took place on that deputation, and I see it stated here that one gentleman stated to the Chancellor of the Exchequer that the cause of the distress was the hop duty; was not that statement made?—I do not agree with him at any rate. No doubt it was part of the cause; because it was part of the expenses that he had been put to which he could not get back again; it was no doubt part of his trouble.

2394. I see it also stated that the duty would absorb the capital of the planters, and dry up the means of employing labour at anything approaching the usual rate; do you agree with that?—It was the payment of the duty; that was the only chance the planter had to get any remedy. All the other expenses had been incurred, but that money had not been paid, and not having to pay it would have helped him to a certain extent. It was the only thing he had a chance of getting any relief by; all his other expenses had been incurred; he had not paid the duty, which is the last thing the man has to pay, and being in a distressed state, he asked the parties who were about to demand that of him that that demand should not be called for.

2395. Did not you state that the loss to the planters in that year was the whole amount of the duty?—Yes, and more than that.

2396. Therefore the duty, if not the whole cause, was in a great measure the cause of the distress among the planters?—Undoubtedly.

2397. Do not you consider the duty an evil?—Decidedly not; as a duty I do not consider it an evil.

2398. Why not?—I think that the imposition being oppressive occasionally in that way, tends to check the large increase of plantation which sometimes occurs when the duty is not so heavy; and that keeps us in our places rather with regard to plantation. I think that is a very beneficial effect of the duty; it tends to restrict the plantation, and to restrain the increase of it, because I maintain, all the way through, that we have a limited market. We do not generally consume more than a certain quantity of hops in the year.

2399. Sir *Edward Dering.*] Does not it also tend to keep out foreign hops, assuming that the Customs duty is left on, and that you could not expect that

if

if the Excise duty were taken off, the Customs duty could be retained?—Yes, if you say that the Customs duty is retained because we have the Excise duty; but I maintain that there are strong reasons why we should have a Customs duty irrespective of the Excise duty.

2400. *Chairman.*] Why should the Customs duty be kept on irrespectiv of the Excise duty?—The main point is, that we have a very limited market for our produce. I have here a statement, in which I find the number of bushels of malt that have been entered for home consumption, or, as I should say, have been used in the country, from 1840 to 1856. It is a statistical return, from which I say it appears (and of course the same argument holds good as to that which we produce) that we do not make more malt than we used to do for 30 years past.

2401. Are you prepared to tell the Committee that the consumption of hops is limited by the consumption of malt?—Yes.

2402. What good reason do you see for keeping up the Customs duty, irrespective of the Excise duty?—I say simply not to subject us to competition with foreigners when we can grow more hops than we can use. We can prove by facts that at this present time, and for a long time past, we have grown more hops upon the average than there has been any demand for, and that necessarily keeps our price down, and if we had to compete with any increase from abroad, it would still more deteriorate our prices.

2403. Do you think that there would be any inducement to the foreigner to send hops to a market which is overstocked?—Yes; if he can send them to a large extent cheaper.

2404. Mr. *Bass.*] Who can send them cheaper?—From Bavaria and Belgium, and America.

2405. *Chairman.*] Is not the effect of the Customs and Excise duty to raise the price in this country?—I do not say so.

2406. Did not you say that if the foreign hops come in, the price of hops would be cheaper?—Simply because it adds to the supply when the demand is limited.

2407. Therefore the price of hops would be lowered?—Yes, we should be injured.

2408. Mr. *Bass.*] Would the consumers in England benefit by that change?—It would not make any difference to them.

2409. Why not?—We have never heard of the price of beer varying with the price of malt. I never knew it excepting in one instance.

2410. *Chairman.*] What was that instance?—That was when Mr. Bass put his beer up 6 *s.* a barrel; but then the class of people who drink that beer can well afford it.

2411. Mr. *Locke.*] Was not it soon taken down?—It was attempted in the trade as to other beers, but they could not carry it out.

2412. *Chairman.*] You have given, as one reason why the Excise and Customs duty should be kept up, that it raises the price of hops grown in this country; and as another reason, that it tends to prevent an extension of cultivation; how does it do that?—Simply because the increased supply from abroad would add to the supply which now at home is ample for all purposes, and more than ample for the planter's purpose, because he has already overstocked his market.

2413. You said that the duty was an increase of the cost of production?—It is an item in the cost of production.

2414. Does not it therefore render it necessary for a man entering into the cultivation of hops to have so much more capital?—Yes.

2415. Does not it therefore so far tend to prevent men of small capital from entering into the business?—It prevents men of inadequate capital from entering into it.

2416. Does not it prevent not only men of inadequate capital, but men of small capital?—Not at all; because a man should not have a larger plantation than his capital would be sufficient for.

2417. If a man undertakes to grow an acre of hops, must he not, in consequence of the duty, have so much more capital dependent upon that cultivation, be his plantation great or small?—Yes.

2418. Does not it also increase the loss which the planter is exposed to?—Yes.

2419. Should not the men engaged in the hop plantation, therefore, have

Mr. *P. S. Punnett.*

25 June 1857.

other cultivations to fall back upon, in the event of hops not turning out well? —It certainly is the case, that the distress in 1847 and 1848 was largely increased by the extraordinary low prices and bad crops of wheat we had; for instance, those who grew wheat at the time the high-priced hops failed, did not get above 40 *s.* a quarter at that time, and that increased their troubles.

2420. Does not it therefore tend rather to restrict the business to men of large holdings?—Not at all; none of our holdings are large in Mid-Kent. Generally speaking, I should say that the portion of the farm that is cultivated with hops in Mid-Kent, does not exceed 8 per cent. or 10 per cent. of the total acreage of the arable land that a man occupies.

2421. What sized farms are there generally in that neighbourhood?—They are not large farms; they absorb a large capital. A small business as to extent, absorbs a large capital as to amount per acre; and I know the farms are by no means large in Mid-Kent.

2422. What are the sizes of the farms generally?—They vary, perhaps from 50 up to 200 or 250 acres; that would be called a large business.

2423. Of a farm of that sort of 200 acres, how much would be cultivated in hops?—I should say that a man would be thought to be within the mark, if he had 20 acres of hops; he might if he had 30.

2424. Is that about the general amount?—We generally say that a man in ordinary business need not rob the rest of the farm, in order to increase the quantity of his hops, if he has about that proportion of hop land to the land that he would otherwise cultivate.

2425. Is that the proportion that men generally have?—Yes; there are exceptions, of couse; but, as a general rule, it is the proportion.

2426. Mr. *W. Martin.*] Do not you find that in some parishes, as Farleigh, and Teston, and so on, the farmers cultivate hops almost exclusively?—Yes; but they are in the hands of men of property.

2427. Those are exceptions, not the rule?—Those are exceptions, not the rule.

2428. Mr. *Bass.*] Are not they a very wealthy class of men?—They are a better class of men than the general run of planters.

2429. Can you explain to us upon what ground it is that the growers of barley should not have protection to the same extent as you demand for the grower of hops?—I have no objection to the grower of barley having protection; I think every man should always have as much protection as you could give him.

2430. Considering that the barley grower has no protection, is it right that he should pay for your protection?—I do not know that he pays it; I thought I said the consumers paid it; but then, I am a consumer, and I am not a barley grower.

2431. Are not many consumers probably growers of barley?—There are some.

2432. Are you aware of the relative quantities of malt that are bought by brewers and by private people?—I have not the data of that, but there is a return of it.

2433. To whatever extent the farmers may brew their own beer, do not they pay the grower of hops?—We are just in the same position. I cannot brew with my own hops without paying the duty, and I cannot brew with my own malt without paying the duty.

2434. You have told us that if we had free trade we should have hops cheaper?—Undoubtedly.

2435. Therefore, do not the growers of barley who brew pay for the protection of your hops?—Yes.

2436. Did not you speak of a time when hops were so depreciated as to become of no value?—Yes.

2437. Did not you call them "old olds"?—"Very old olds."

2438. Of what age are those?—We have some hops in our posession of the year 1825 and subsequent years.

2439. What would you call 1848 hops?—Old olds.

2440. What would they be worth?—It would be difficult to find any; they must be rotten and good for nothing.

2441. Supposing you sold your own good Mid-Kents at 5 *l.*, and that then there was a fair crop this year, and a new hop started again at 5 *l.*, what would the

the hops of last year be worth according to your opinion?—I can ascertain that very readily; but I have no memorandum from which to answer it.

2442. Have not you, as chairman of the company which has been alluded to, had much experience in the sale of yearlings as compared with new hops?—Yes; but I have never troubled myself much with the accounts sales; I am chairman of the company; but I have little to do with the business of buying and selling.

2443. Supposing that good Mid-Kent samples were to start at 5 *l.* on the 1st of October, have you any idea what the value of samples of the same value and the same quality of last year would be?—I should say that they would be one-third less in value.

2444. That is 33 per cent.?—Yes.

2445. If a gentleman has told the Committee that it only made a difference of five per cent., do you think he was in error?—I heard that gentleman giving evidence, and I think he misunderstood the question; he referred to deterioration in quality, not to depreciation as to price. But I have not paid attention to that question.

2446. Mr. *Ball.*] You have been asked if there are any reasons why, the duty being taken off barley, the duty should be continued upon hops; are there no such reasons?—I do not know why the duty should be continued on barley. I should like to see it taken off.

2447. Do you see no reason why it might be very proper to keep the duty upon barley, whereas it might not be proper to keep the duty upon hops?—I do not quite understand the question.

2448. Used there not to be an import duty paid upon barley?—Yes.

2449. That duty is now taken off?—Yes.

2450. Is not there a duty paid upon hops?—Yes.

2451. Do you say that duty should not be taken off?—Yes.

2452. Can you give any reason why, if the duty had been taken off barley, it should not be taken off hops?—Because we have a duty upon malt.

2453. May there not be a good reason for taking off the duty upon barley when there was not the same reason for taking it off hops?—Yes. I think taking off the duty on barley would be felt by the consumers a good deal more than taking the duty off hops.

2454. Do you consider malt to be a thing of such general consumption that it was almost a necessity to relieve the public of the duty?—I never saw the necessity, myself.

2455. May there not be a reason why, on a commodity like hops, for which there is not a large consumption, and the cheapness of which does not much increase consumption, the duty should be continued, whereas it would have been very wrong to have continued it on barley?—I do not quite see the bearing of the question, nor do I see exactly how I can answer it. I have no particular opinion upon it.

2456. *Chairman.*] The duty has been taken off barley. Do you see any reason why the duty should not be in the same manner taken off hops?—Yes; I see a very good reason, which is, that there is still a heavy duty on malt, and hops are used entirely in connexion with malt; so that, as the duty upon malt prevents any increase in its manufacture yearly, I say that it gives us a limited market for our hops, and in that way governs the sale; I say that if the duty on hops were taken off, it would be injurious to us, and of no profit to the public.

2457. Mr. *Bass.*] Are not you aware that for a long series of years no barley was imported into this country except in years of scarcity, and almost of famine?—Yes.

2458. Was not that the period which you have named as being one at which as large a consumption of malt existed as exists now?—Just so.

2459. Considering that the consumption of barley was at that period, as it is now, limited, to a certain extent, by the duty which is paid upon malt, was not the same reason in force against taking off the duty upon barley as there is now with regard to hops?—There is not the same reason, in my opinion.

2460. It was suggested to you that there were many purposes to which barley is adapted, and for which it is applied, beyond that of being used in connexion with malt; are you aware of the proportion of barley grown which is used for malting purposes, as compared with the whole quantity?—No, I do not

Mr. *P. S. Punnett.* not know how that can very well be ascertained; there are no statistics that I know that would furnish it.

25 June 1857. 2461. Have you any doubt that a very large proportion of the barley grown is used for malting purposes?—I have no means of knowing.

2462. How many acres do you apprehend that there are under cultivation in barley on the average of years?—I do not know; it fluctuates a good deal.

2463. *Chairman.*] I am told that about 8,000,000 of quarters of barley are grown annually; do you, in your country, grow more than five quarters per acre?—In my country we grow none. Since the duty was taken off, I left off growing barley for malting.

2464. May not we assume that five quarters an acre would be a fine crop of barley?—Yes.

2465. If we grow 8,000,000 of quarters, should not we require nearly 2,000,000 of acres to produce the barley crop?—Yes.

2466. Is barley grown every year upon the same land?—No, it is not.

2467. Is not it generally grown upon a rotation of four years?—Yes, four or five years.

2468. Would you not therefore have 8,000,000 acres employed in the production of barley principally for malting purposes?—Yes.

2469. Would not it seem that those producers would be interested in having all the articles that are required for the consumption of barley as low as possible?—No doubt; anything that would tend to create a demand for barley, or to increase it in any way, would be beneficial to them.

2470. Has it occurred to you that when hops are exceedingly dear, the price of barley is usually correspondingly low?—It has not occurred to me, and I do not know whether it is so.

2471. Have you compared the average prices of hops and barley for any number of years?—To some extent, I have.

2472. Hops were very low last year, were they not?—Yes.

2473. Do you know the price of barley in October 1854?—Yes; I have a return which will show it for every month. In October 1854, the price of barley is said to be 30 *s.* 11 *d.*

2474. Now look to October 1855?—In October 1855, it was 38 *s.* 2 *d.*

2475. Now look to October 1856?—In October 1856, it was 40 *s.* 9 *d.*

2476. Now, will you tell us the price of hops for those years?—I have no statistics of the price of hops.

2477. Was not the duty, in 1854, 47,000 *l.*?—Yes, I think it was.

2478. At that time, was not the price of barley 31 *s.* a quarter?—Yes.

2479. In October 1855, was not the duty nearly 400,000 *l.*?—Yes.

2480. What was the price of barley in that year?—38 *s.* 2 *d.* a quarter.

2481. Were not hops still cheaper in 1856 than in 1855?—Yes.

2482. And do not you find the price of barley considerably dearer in that Year?—Yes.

2483. Were there any circumstances that produced the rise?—Yes; there was a scarcity in the crop.

2484. *Chairman.*] Have you any statement that you wish to make in reference to the questions that have been put to you?—I wish to say that it is not altogether a question about barley; it is a question about malt, and I cannot see that the quantity of hops grown or the quantity of barley grown, has anything to do with the quantity of barley turned into malt, or the quantity of malt consumed in those years. Now, for instance, in 1850, there were 433,000 cwts. (leaving out odd figures) of hops grown, and there were 40,744,000 bushels of malt (leaving out the hundreds of bushels.) Then I find that next year there were only 241,000 cwts. of hops grown, and there were 40,337,000 bushels of malt. Then I go to another year when we got a higher duty, that is 1852, when we grew 346,000 cwts., and then I find that at that time we had 41,072,000 bushels of malt; then we come to 1853, in which there were 283,000 cwts. of hops grown, and 41,900,000 (nearly 42,000,000) of bushels of malt. Then I come to the low year of 1854, when we grew 88,000 cwts. of hops, and we had 36,000,000 bushels of barley.

2485. Mr. *Bass.*] Can you tell me how many cwts. of foreign hops you got that year?—119,000 cwt. were brought in, but that is a question for the factor and consumer of the goods. To me it appears immaterial whether there is a large quantity of hops or a small quantity of hops grown, or whether there is a large

quantity

quantity of barley or a small quantity of barley grown, there seems to be the same limit put by Act of Parliament to the quantity of malt made, and that is not affected by the quantity of hops grown.

2486. Will you go on to the next year, and say how much malt was made in 1855?—In that year there were 743,000 cwts. of hops, and 33,882,000 bushels of malt. But if you look at the enormous quantity of hops, and look at the malt, the hops were still plentiful.

2487. Does not the quantity of hops made in any year depend upon the consumption of the year before?—To some extent it does.

2488. Is not that return of yours a return of the quantity of malt produced in 1854, for the whole year of which nine months would be affected by the prices of hops during the dear years?—I do not understand the question.

2489. You told us that we had only 33,000,000 of bushels of malt made in 1855?—Yes.

2490. Your reasoning is to show, that though we grew in 1855 the largest crop of hops ever grown, yet the quantity of malt consumed had fallen off 9,000,000 of bushels within three years; what I want to ask you is, whether the crop of 1854 was not used for nine months, with the crop of barley for 1855, and therefore might be presumed to have the effect of diminishing the consumption?—That is very possible indeed.

2491. Is not that the fact?—It is the fact no doubt; it cannot be otherwise, for we cannot malt barley until it is grown.

2492. Mr. *W. Martin.*] Is not the quantity of hops always a year later?—To some extent it is; it is nine months, or even a longer period.

2493. Will you go on with your statement for the next year?—The British hops grown were to 489,000 cwt. in 1856.

2494. Do not they use the malt of 1857 with the hops of 1856?—Yes; that you cannot get out of.

2495. Mr. *Bass.*] Do not the great changes in barley affect the duty upon malt?—There can be no doubt about it.

2496. Mr. *Brand.*] You have been examined with reference to the high price of barley in the years of 1855 and 1856; may not that high price be affected from having so diminished a supply?—I attribute it clearly to that.

2497. Is not it the fact, that the price of wheat in those years was very high?—The price of wheat, in 1855, was 55 *s.* 11 *d.*; in 1854, 57 *s.* 11 *d.*, and in 1856, 75 *s.*

2498. Is not it true that in those years a great deal of barley land was thrown out of cultivation for the sake of growing wheat?—Yes.

2499. Is not it likely that the growth of barley in those years would be small?—None of it is grown in my country.

2500. *Chairman.*] I think you said that the Customs duty benefits the grower of hops?—Yes.

2501. Would you rather have the present system of Excise and Customs duty, or neither Excise nor Customs duty?—Certainly. I would rather keep things as they are than have the Customs duty altered.

2502. Do you think that if the Excise duty inflicts upon him in abundant years a heavy injury, still the benefit arising from the Customs duty compensates him?—I do not go as far as that. You give me the choice of two difficulties, and of the two, I think that would be the best. I would rather go on as we are, if I understand the question rightly, paying the present Customs duty and the present Excise duty, than paying neither the one nor the other.

2503. Mr. *Ball.*] You would rather keep both than abate both?—Yes.

2504. *Chairman.*] You have told us that, in an abundant year, the producer paid the duty out of his own pocket?—It is not always so in abundant years; it is so in an abundant year and a low priced year too; when low prices are combined with a large crop, the price goes down to so an unremunerative point, that it calls upon the planter to find the duty out of his own pocket.

2505. Are not the abundant years cheap years?—Sometimes the abundant years pay. It depends upon what the preceding year has been.

2506. As a general rule, abundant years are disastrous ones?—Yes.

2507. In 1847 and 1848, did not the planters lose the whole amount of the duty?—Yes.

2508. Did the gain which they got from the Customs duty in the two following years compensate them for the loss in 1847 and 1848?—I do not know if they

Mr. *P. S. Punnett.*

25 June 1857.

they particularly gained in 1849 and 1850. But since the reduction in the Customs duty in 1846, there has been an enormous relative increase in the import of foreign hops.

2509. Did the benefit conferred upon the planters by the Customs duty compensate for the evils inflicted upon them by the Excise duty of 1847 and 1848?—Not in those two years, decidedly. But I do not see how the Customs duty had anything to do with them in those years. There was next to no importation of hops that year, because our own hops being cheap kept foreign hops out. Foreigners could not pay the duty on the importation of their hops, so that it had the effect of benefiting us.

2510. Mr. *Bass.*] Did not the foreign trade begin in 1853?—Yes.

2511. *Chairman.*] Is not it the case that in an abundant year the Customs duty is no benefit because the foreigner could not come in?—In an abundant year the Customs duty is a benefit; I think those are the important years. I can cite an instance at this present time that occurred within my own knowledge last week, which will prove to the Committee that the Customs duty is an advantage to us. There were 170 or 180 bales of Belgian hops put upon our boards the other day, which many of those persons who saw them pronounced to be better than any Sussex or Weald of Kent hops on our premises. Those were offered at 2 *l.* 2 *s.*, and the duty in bond, and the men who had these hops to sell at two guineas would have to put on 2 *l.* 5 *s.*; that would be 4 *l.* 7 *s.*; that is a fabulous price for Sussex hops at present.

2512. If the hops could come in in an abundant year, would not free trade lower the price of hops in this country?—I think they would lower the price of hops in this country, and, I should say, seriously injure the planters by so doing.

2513. If the price of hops is materially lowered, must it not in the long run benefit the consumer?—I do not think so, because I do not think that, except in the one instance I have mentioned, the value of hops ever affected the price of beer; and as to how far the duty of 2 *l.* 5 *s.* a hundred weight upon hops can affect the price of a pot of beer which a man puts down his throat, I cannot understand.

2514. If it never affects the price of beer, has it never struck you that it might affect the quality of the beer?—I do not think it would affect the quality in the least; that must entirely depend upon the quality of the hops which are employed in it.

2515. Do you think, although foreign hops would be so much cheaper than the English, it would neither diminish the price nor improve the quality of the beer?—I do not think it would have that effect in the least.

2516. Mr. *Bass.*] Do I rightly understand you to mean that the price of hops, as an ingredient in malt liquor, does not affect the price of malt liquor?—It does not to the consumer. I do not say it does not affect the cost to the makers of the beer, but what the consumer would have to pay for his beverage is not affected by the price of hops at all.

2517. Do you consider that the present malt tax does affect the price of beer?—Undoubtedly.

2518. Are not you aware, that taking the average quantity of hops consumed to a quarter of malt, the difference in expense between a moderate year and a high-priced year is more than equal to the whole malt duty?—No, I am not aware of it. I never could find how many hops were put in beer to a bushel of malt; I never could find out how much hops the brewer put in the beer.

2519. *Chairman.*] Did not you speak positively to the fact that the price of hops did not in any way affect the quality of beer?—I think it does not affect the quality at all.

2520. How do you know that if, as you say, it is impossible to ascertain the quantity of hops the brewers use in their beer?—The question was put to me in this way: whether the duty upon hops affected the consumer; and I said that it did not, because I never have known that the price was affected to the consumer by the price of hops, and therefore the duty being so much smaller than the price of hops in the market, it is absurd to suppose that the duty would affect it.

2521. *Chairman.*] Do not the brewers use other things sometimes, when hops are scarce, besides hops?—Yes; I believe they do.

2522. If that is the case, must not the price of hops affect the quality of the beer?

beer?—I know nothing about how much they put in, and therefore I cannot speak positively. Mr. P. S. Pannett. 25 June 1857.

2523. Sir *Edward Dering.*] The ground upon which you form your judgment is, that whatever may be the price of hops, the price of beer is not varied?—That is what I say.

2524. Mr. *Ball.*] Your evidence is, that the price of beer to the public does not vary with the price of hops?—I say that is the fact.

2525. And therefore whatever deductions there may be in the price of hops, the public do not get any deduction in the price of beer?—Just so; that is my opinion.

2526. *Chairman.*] Can you say positively that the Customs duty does keep up the price of hops?—I can, from my knowledge at the time hops were imported into this country; I have been in a position to know what a great many of those foreign hops have been sold for, and I believe that the duty was found to keep the foreign hops out of the market; that is a beneficial thing to the planter here.

2527. The Committee were told by a witness a few days ago that the price of foreign hops has been higher within the last eight years, since the Customs duty was lowered, than it was in the previous eight years, when the Customs duty was higher?—I do not think that was the case. That question was asked of Mr. Webster, and I believe Mr. Webster meant to say that the price of British hops had been higher since 1846, when the Customs duty was altered from 4*l.* 10*s.* to 2*l.* 5*s.*, but the foreign hops were dear because there were next to none imported.

2528. Mr. *Brand.*] Was not this the tendency of Mr. Webster's evidence: to show that the price of foreign hops increased to the public, though the duty was lowered?—Yes, that was what I understood it to be.

2529. Mr. *Bass.*] Do you agree to that?—No, I do not agree to that.

2530. *Chairman.*] Do you think that he was wrong in his facts?—I think that he was wrong in his facts. He goes back to a considerable time. What were the prices of hops eight years back would be a difficult thing to say; it would depend upon what hops they were. I do not think he is right in his inference.

2531. Do you say that the foreigner could compete with you, even in an abundant year?—He does so now.

2532. And that he would altogether undersell you, if there were no Customs duty?—Undoubtedly he would.

2533. Is not protection a more special benefit to you in a scarce year?—Yes; but the foreign duty seems to be set at that amount, that even when there is a scarcity of hops in this country, it admits them very freely. But if you look at the year 1854, you will see that the duty on British hops was only 88,000*l.*, and there were imported in that year 119,657 cwt. of foreign hops.

2534. Mr. *Bass.*] Was that at the low duty?—Possibly it may have been at the low duty. We only used 102,736 cwts. Then, again, in another year, there is an evident tendency to an increased quantity of foreign hops in the market.

2535. *Chairman.*] Are you willing to pay the Excise duty as an insurance against foreign competition?—Yes, that is my own opinion.

2536. In the year 1854, was not the duty upon foreign hops reduced?—It was in August 1854.

2537. Do not you think that that is a circumstance which might take place again?—No, I do not think so.

2538. You have that reliance upon the Chancellors of the Exchequer that you think that in a scarce year they would never yield to temptation?—I think if they did, that they would lose money without getting any good from it.

2539. It was done in 1854?—It was done in 1854; but I believe that the Chancellor of the Exchequer got no benefit from it, nor anybody else but the brewers. The advantage was divided between the importers of foreign hops and the brewers who used them, and the Chancellor of the Exchequer lost money.

2540. Has not the circumstance of the duty being modified in that year at all weakened your dependence on the value of the protection it affords?—I think it was a great breach of faith on the part of the Chancellor of the Exchequer to do what he did; and I think it was a great hardship upon many

Mr. *P. S. Punnett.* planters, because many planters held their hops that year, and they never got their duty reduced.

25 June 1857. 2541. In that case had not the farmer all the disadvantage of this system of doubt without having the benefit of it?—Because they chose to set aside the Act of Parliament to suit their own convenience I hold this to be an inconvenience to them.

2542. If they have done it once, is it not possible they will do it again?—I think it is very improbable, because as I said before, the country lost the revenue, and the consumer got nothing by the money that was lost by the Chancellor of the Exchequer; those who benefited were the men who imported the hops, and the brewers who used them; and in the face of those facts he is not likely to do it again.

2543. Are you sure that the Chancellor of the Exchequer lost revenue by it?—I consider that he lost all the difference between 1 *l.* and 2 *l.* 5 *s.*

2544. Were not there more hops imported on account of the reduction?—I do not think so.

2545. Do you think that in consequence of reduction of duty, no more hops were imported in 1854 than would have been imported if the duty had been left where it was?—Not a pound.

2546. Sir *Edward Dering.*] If the foreigner were able to produce those hops, paying a foreign duty less than the ordinary duty by 1 *l.* 5 *s.*, did not that difference of 1 *l.* 5 *s.* lower the price of British grown hops?—It did not have the effect of lowering the price of British grown hops; I believe that there would have been just as many foreign hops if they had paid 2 *l.* 5 *s.*, as there were when they paid 1 *l.* 5 *s.*

2547. *Chairman.*] Did not the reduction of duty on foreign hops lower the price of British grown hops?—Rather the other way. The importation being an exception, I do not think it lowered the price at all.

2548. In what way was it a hardship upon the planters?—They depended upon the Chancellor of the Exchequer. In lowering the price of the hops, he acted very unfairly towards British planters, because there were many planters who had their own hops on their hands, who had not paid the duty, but were called upon to pay the duty; whereas those who had foreign hops in bond at the time (and who were in the same position as the planters, not having paid the duty,) were not called upon to pay the full duty, but one-half of the duty was given up to them; it was a great hardship to the British planters.

2549. In consequence of the reduction of the duty upon foreign hops, did not foreign hops come into this country which would not have come in otherwise?—I do not say so. What I know is, that if the duty reduction took place or not, foreign hops would have come in whether they paid 2 *l.* 5 *s.* duty or 1 *l.*

2550. Mr. *John Locke.*] Would not the price in the market have been higher?—Yes.

2551. If they had come in paying the 2 *l.* 5 *s.* duty, instead of the 1 *l.*, and if they had been sold in this country, would not the price have been higher by the difference in the duty?—I do not know that it would, they would have what they could get, it being a short supply.

2552. Would not that necessarily regulate the price of your hops?—At that time such was the short supply of hops, that the quantity that came in from abroad was not sufficient to affect the value of our hops; while, in fact, if anything, I think (that was a very exceptional year) British hops were dearer at the close of the season than at the beginning; but that was a year when we only grew 88,000 cwt. of hops.

2553. Mr. *Bass.*] You said, just now, that the price of hops was not affected in 1854 by the reduction of the duty?—Yes.

2554. You said it was the foreigner that got all the benefit; did he charge so much more for his hops?—No; I said that the brewer and the foreigner together put the difference of that duty into their pockets between them.

2575. Will you explain how it was that the brewers got any benefit from that reduction, if the price of their hops was not reduced, as you said?—I said that the price of British hops was not reduced; with reference to foreign hops that were imported, a good many people had those hops in bond at the time; they had bought them, and the question merely was, how much duty they would have to pay; if they had to pay 25 *s.* instead of 1 *l.*, it was to their benefit.

2556. To

Mr. *P. S. Punnett.*

25 June 1857.

2556. To whose benefit?—To the benefit of the person who had them in bond.

2557. *Chairman.*] You said that the year 1854 was an exceptional year, and a high-priced year?—Yes.

2558. How do you account for the circumstance that hops being at such a high price, and the Customs duty upon hops being reduced, no more foreign hops were imported in that year than would have been imported if the duty had not been lowered?—Such was the want of foreign hops that year, a large quantity of hops would have come in if the duty had not been lowered.

2559. To meet the demand the quantity was not sufficiently increased?—The quantity was not sufficiently increased for the consumption.

Lunæ, 29° die Junii, 1857.

MEMBERS PRESENT.

Mr. Ball.	Mr. Beresford Hope.
Mr. Beach.	Mr. Knight.
Mr. Booker Blakemore.	Mr. John Locke.
Mr. Brand.	Mr. Wykeham Martin.
Sir Edward Dering.	Viscount Pevensey.
Mr. Dodson.	Sir John Shelley.

JOHN GEORGE DODSON, Esq., IN THE CHAIR.

Mr. *Thomas Neve*, called in; and Examined.

Mr. *T. Neve.*

29 June 1857.

2560. *Chairman.*] YOU have been a Hop Grower for a number of years?—For 44 years.

2561. And you also act as a land agent?—I do.

2562. The Committee have been told by several witnesses that the expense of cultivation in the Weald of Kent varies from 22 *l.* to 30 *l.* an acre; does that agree with your experience?—Yes; I think that 25 *l.* at least is the average.

2563. The Committee have been told that the subsequent expenses of picking, and drying, and the duty, vary from 36 *s.* to 44 *s.* a cwt.; is that so?—I have always calculated them at about 40 *s.*

2564. Are you acquainted with the different parts of Kent?—Yes, I am.

2565. What part of Kent are you best acquainted with?—Particularly with the Weald of Kent.

2566. Have you been a hop grower in any other part of Kent besides the Weald?—No, I have not.

2567. Are you acquainted with the cultivation of hops in the neighbourhood of Maidstone?—Yes, I am; I have a son occupying a farm there.

2568. Are you also acquainted with the immediate neighbourhood of Canterbury?—Yes, I am.

2569. Is there any great difference in the natural adaptability of those soils for the production of hops?—The Canterbury soils produce a better kind of hop than the Weald of Kent.

2570. Do you know the Ragstone hills near Maidstone?—Yes; they certainly produce better hops than the Weald of Kent.

2571. Are the expenses of cultivation the same in those different soils?—I think they are greater in the Weald of Kent than either at Maidstone or Canterbury.

2572. In what respects are they greater?—The soil is more easily worked in the Canterbury and Maidstone plantations, and they will bear larger poles, and consequently I think that that portion is less expensive than the Weald of Kent.

2573. Are the expenses of draining the same in each?—The expenses of draining certainly would be much greater in the Weald of Kent and Sussex.

2574. Mr. *Hope.*] Did you say that the poling was cheaper in the Canterbury district?

Mr. *T. Neve.*

29 June 1857.

district?—Yes, from their using larger poles. Of course it is more expensive in the first instance; but then the poles last so much longer where larger poles are used, that I consider that annually, taking a series of years, the poling is cheaper upon those lands than it would be where they use from 14 to 10 feet.

2575. Sir *Edward Dering.*] What is the price of the large poles that are suited for poling the Canterbury and Maidstone hops?—Something like 40 *s.* a hundred.

2576. What is the price of the poles that are in general use in the Weald of Kent?—From 20 *s.* to 25 *s.* a hundred.

2577. Mr. *Brand.*] Are you speaking of 12 feet poles?—No, of 14 feet poles.

2578. Mr. *Hope.*] How long will the 14 feet poles last?—It depends entirely upon what they are; chesnut poles will be much more durable than others.

2579. Sir *Edward Dering.*] Which do you consider will last the longest; the Weald of Kent poles, or the description of poles which are used at Maidstone and Canterbury?—I should say that the Canterbury poles would last much longer than the others. They are so well grown.

2580. What should you say was the fair average duration of those large poles which cost 40 *s.* the hundred?—I should say 10 years at least.

2581. What should you say was a fair average duration for the 14 feet poles?—I think not more than five years.

2582. Do the hops require the same number of poles per acre in Canterbury and Maidstone, as they do in the Weald of Kent?—About the same number of poles.

2583. And they last double the time?—Yes.

2584. *Chairman.*] In what other respects are the expenses of cultivation greater in the Weald of Kent than on the Ragstone hills near Maidstone, or in the neighbourhood of Canterbury?—The soil is more easily worked; and upon the Ragstone hills it does not require draining.

2585. Does the land near Canterbury require draining?—No.

2586. What is the nature of the soil near Canterbury?—It is a very fine loam.

2587. What is the sub-soil?—It is a porous sub-soil.

2588. Is it naturally dry?—Yes; it is naturally dry.

2589. Is it not the sort of soil which hops require?—Yes.

2590. Do not the roots of the hops go down a great depth into the soil?—Yes, a very great depth, where it is a suitable soil.

2591. Do they do so in the Weald of Kent?—No; they cannot do so there, the soil is so exceedingly stiff; it is a stiff clay.

2592. There is a great deal of work in that soil, is there not?—Yes.

2593. Is there any difference in the expenses of manual labour for hoeing and digging in the different soils?—Yes; from it being a heavier soil, of course, we have to pay more for digging and chopping in the Weald of Kent than upon the lighter soil.

2594. Sir *John Shelley.*] Upon the average of years, would not hoeing be more required in stiff land than in light land?—Yes, it would considerably.

2595. *Chairman.*] Is the expense of forming a garden greater or less in the Weald of Kent than on those other soils?—It is greater in the Weald of Kent.

2596. Is that solely to be attributed to the great expense required for drainage, or does it arise from other things?—It is principally from drainage.

2597. Does a garden once formed last as long in the Weald of Kent as it does on these other soils?—Nothing like it.

2598. What are the different durations of time that a garden will last in the different districts?—We seldom consider it right or advisable to keep up a garden in the Weald of Kent more than 14 years. In the neighbourhood of Maidstone there are gardens more than 100 years old.

2599. How long do they last in the neighbourhood of Canterbury?—Much longer than with us.

2600. Are you aware of any there that have lasted 100 years?—No, I am not.

2601. What is the rent of hop land in the Weald of Kent generally?—In the Weald of Kent it varies from 10 *s.* to 25 *s.* per acre; but the average is below 20 *s.*

2602. Mr. *Brand.*] Do you include the ordinary tithe in that estimate?—No; I do not include the ordinary tithe.

2603. Mr.

2603. Mr. *B. Blakemore.*] Is that the rent of the hop plantation, separate from the rent of the farm?—No; it is all a mixed cultivation.

2604. Are they all statute acres?—All statute acres.

2605. That is the rent of the whole farm?—It is the rent of the whole farm.

2606. Sir *Edward Dering.*] There is no such thing as taking hop land by itself, in the Weald of Kent, is there?—No.

2607. *Chairman.*] As a land agent, have not you been engaged in the letting of land in the other districts of Kent?—Yes, I have.

2608. What is the rent of land on the Ragstone hills, near Maidstone?—It is nearly 40 *s.* an acre.

2609. Does not some of the hop land near there let for a much higher price?—Yes; there is some land let as high as 6 *l.* or 7 *l.* an acre.

2610. Mr. *W. Martin.*] That, I suppose, is the price near Farleigh, in the valley near Maidstone?—Yes; that is where there is a piece of hop ground let separate.

2611. *Chairman.*] Is not that piece of ground particularly adapted by nature for the growth of hops?—Yes.

2612. Is there any land of that kind in the Weald of Kent?—None.

2613. Sir *John Shelley.*] Are there no lands in the Weald of Kent which are let for 6 *l.* or 7 *l.* an acre?—None.

2614. *Chairman.*] What does hop land let for at Canterbury?—I cannot say.

2615. Have you not had any experience in the rent of land there?—No, I have not.

2616. Are you acquainted with the Weald of Sussex?—Yes, I am.

2617. Is there any difference as to the expenses of the cultivation of hops in the Weald of Sussex, as compared with the Weald of Kent?—I think, very little.

2618. Sir *John Shelley.*] In what direction will the difference be?—I think it would be less in Sussex than in Kent; but I do not think the amount is much.

2619. Sir *Edward Dering.*] Are wages quite so high in Sussex as in Kent?—No; the wages are lower.

2620. Is labour there generally as high as labour in Kent?—There is not much difference.

2621. Mr. *B. Blakemore.*] In the districts of which you speak, are the landlords favourable to the growth of hops, or do they discourage them?—I should say that they are favourable, so far as regards the underwood; of course it improves the value of their wood land.

2622. Is there any penalty attached to breaking up of hop gardens as there would be to breaking up meadow land?—No; it is generally left to the discretion of the tenants in the Weald of Kent, but it is not so in the neighbourhood of Maidstone.

2623. I suppose they are not allowed to break up the hop land where there is a rent of 7 *l.* or 8 *l.* an acre?—No; of course not.

2624.] As a land agent and hop grower, can you give the Committee any idea as to whether the generality of hop growers are men of capital?—I am sorry to say that they are not, taking them as a body.

2625. What districts do you speak of in giving that answer?—Of the Wealds of Kent and Sussex.

2626. Sir *John Shelley.*] Are the farmers generally in the Weald of Kent, taking them as a body, what you may call men of capital?—No; I should say they are not.

2627. Mr. *B. Blakemore.*] Could they afford to hold their stock from one year to another?—Very few indeed.

2628. In practice, do they do so?—Very few.

2629. If they have a large crop, or when the price is low, do they hold it upon the uncertainty of a good crop the following year?—They would do so, if they were not compelled to sell the greater part of their produce to meet the heavy payments.

2630. The duty being one of those payments?—The duty being one.

2631. When you speak of the expense of drainage of hop lands, do you mean under drainage?—Yes.

2632. Has that been in long practice in the district you speak of?—Yes.

2633. For how many years?—Ever since I can remember; I have been a hop

Mr. *T. Neve.*

29 June 1857.

planter 44 years, and during all that time it has been in practice; but of course the drainage was not so effectually done formerly as it is now.

2634. Is it pipe-drainage?—It is pipe-drainage now.

2635. Is it deep?—Four feet deep; from three feet to four feet.

2636. Does not the hop root go much lower than that?—If you were to drain it 20 feet deep, I have no doubt that the hops would last longer than they do.

2637. Do the hops that are of a finer sort last as long as those of a coarser sort?—I am not able to say.

2638. What wood is the most favourable in the Canterbury district, where the poles last 16 years?—Chesnut and ash and larch are the most durable.

2639. Mr. *Hope.*] Has not chesnut been chiefly planted of late?—Yes, it has.

2640. *Chairman.*] Of those three different districts, which grows the greatest number of hundredweights per acre?—The Wealds generally produce greater crops than either Maidstone or Canterbury.

2641. Is there any difference as to that between Maidstone and Canterbury?—I am not aware that there is any great difference.

2642. Which crop on the average sells for the highest price?—The East Kent and the Mid-Kent sell considerably higher than the Weald of Kent.

2643. Sir *Edward Dering.*] Per acre or per cwt.?—Per cwt.

2644. *Chairman.*] Taking the produce of an acre of land near Maidstone and the produce of an acre of land in the Weald of Kent, which should you say generally will fetch the highest price?—Those of Canterbury and Mid-Kent.

2645. Which would pay the greatest amount of duty?—Those of the Weald of Kent.

2646. Is not the duty paid, whether the hops are sold or not?—Yes, it is.

2647. Sir *Edward Dering.*] Did I rightly understand you to say that on an acre of Canterbury or Maidstone hops the gross amount would be greater than the gross amount on an acre of Sussex or Weald of Kent hops?—I think so.

2648. What should you say would be a fair average in East Kent, and a fair average in Sussex, taking a good crop in each?—I should say that in the Weald of Kent 15 cwt. an acre would be a large crop on the average.

2649. If you grow 15 cwt. in the Weald of Kent, what would be a good crop in Canterbury?—From 10 cwt. to 12 cwt.

2650. How much would be the difference of price between East Kent and Sussex?—Frequently 2 *l.* a cwt.

2651. Mr. *Knight.*] It has been represented to the Committee that there is 25 per cent. difference; is that correct?—I think it is quite that.

2652. *Chairman.*] That is the difference in the price which the factor would pay the grower?—Yes.

2653. Sir *John Shelley.*] So that the person receiving the smallest profit pays the largest amount of duty?—Yes, he does, decidedly.

2654. *Chairman.*] You told us that the duty was paid whether the hops were sold or not; do not hops in a superabundant year often stand till they are considerably deteriorated?—Yes.

2655. Have you ever known that hops have been left ungathered?—I left several acres ungathered myself last year, and I have done it before.

2656. Would not those hops be worth gathering?—If I had picked them they would not have been worth 40 *s.* a cwt.; and therefore I let them blow away.

2657. Were they bad hops?—Merely from being discoloured.

2658. Sir *Edward Dering.*] Do you generally find that those hops that you leave in that way grow stronger, and that you may look for rather a better crop next year?—No, I do not.

2659. Do not you find that the hops that are left late on the poles generally shoot stronger than those which are cut early?—Yes, than those which are cut very early they do; but I have not seen any difference. This is not the first time that I have let hops blow away.

2660. Sir *John Shelley.*] Supposing there had been no duty last year, should you have picked those hops?—Certainly.

2661. They would have paid the expense of picking, and drying, and marketing, but they would not pay you the duty?—I thought not.

2662. Mr. *Brand.*] Were there many hops in your neighbourhood left unpicked last year?—There were several acres of them; a strong gale of wind towards the latter part of picking bruised them all and damaged them, and after that they were not worth picking.

2663. In the year 1855, were there many hops left unpicked?—There were a great many that were picked that did not pay for picking.

2664. Sir *John Shelley.*] When you say they were not worth picking, is the Committee to understand you to mean, that they were not worth picking, with the expences and duty upon them?—We should not have made 40 *s.* a cwt. upon them.

2665. *Chairman.*] You would have had to pay the duty out of your pocket?—Yes.

2666. Do you think the Customs duty raises the price of hops in this country?—If we had had no duty at all the last two years, many planters would have got a much better price for their hops than they have done.

2667. Mr. *Knight.*] Why do you suppose so?—Because the planters were obliged to sell so large a portion of their hops to meet the duty and the rent.

2668. Are not they enabled to retain the duty for a very long period?—Yes, but then there is the duty of the former crop that stares them in the face directly they have gathered their crop.

2669. Have not they already received the money for that duty, when they sold the former crop?—Yes, but unfortunately they have spent it all.

2670. *Chairman.*] Have they always received the amount of the duty back in the price of the hops?—Certainly not, the buyers never ask the planters what those hops cost them; they buy them as cheap as they can.

2671. Whenever there is a large crop of hops, does not the planter pay the duty out of his own pocket?—There is no doubt of it.

2672. Mr. *W. Martin.*] Does this sometimes arise from the want of capital, which you have mentioned in a former answer?—Yes.

2673. If they had a larger capital, would not they be able to meet the duty out of their capital?—Yes.

2674. And they would not be obliged in that case to spend the duty which they ought to have in hand?—Yes; but of this I am quite satisfied from a long experience, that if the whole of the hop plantations had been in the hands of one company, the company would never have gone on 10 years without being insolvent.

2675. Sir *John Shelley.*] Supposing every hop grower in the country were a man of capital, do not you think that the end of it would be, that his capital would be wasted by paying the duty in large years?—I have no doubt of it.

2676. Mr. *Knight.*] Do you know what the price of foreign hops was in the market last year?—Only by hearsay; I do not know of my own knowledge.

2677. You told us that the price of English hops would have been higher if there had been no foreign duty?—I think so, with so large a crop as we had.

2678. Are you aware what the price of foreign hops was?—No, I am not.

2679. Do you think if the price of hops had been reduced 25 *s.* they would not have come into greater competition with the English hops than they did?—They would, certainly; but I think that the hops would not have been forced upon the market in the way they were.

2680. If there had been a large quantity of foreign hops in the market at 25 *s.* less than the price of last year, do you think that the English hops would have been sold at all?—Yes, I think they would.

2681. You have shown clearly that there was a larger quantity than the country required on the market last year?—Yes; but when we grow such heavy crops as we have done the last two years, I do not think we need fear competition with the foreigner.

2682. There were a considerable quantity of foreign hops, as appears by the return; suppose they had been sold at 25 *s.* less, would they not have considerably interfered with the price of English hops?—It might have been so, certainly.

2683. If the foreign hops could compete last year, paying 25 *s.* duty, do not you think that they would have absolutely cut a great quantity of English hops out of the market when they came in at 25 *s.* less than they were selling?—We were paying a duty of 1 *l.*, or nearly that, last year.

2684. What was the price at which you sold Weald of Kent hops?—I have not sold my last year's crops.

2685. What was the average price at which they were selling?—A great many hops were sold last year at 50 *s.*, and some at less.

Mr. T. Neve.

29 June 1857.

2686. At 25 *s.* less than that, would not it have been perfectly ruinous?—Not at all more ruinous than it was paying the duty.

2687. If the grower sold the hops at 50 *s.* per cwt. in the market, if foreign hops had come in without paying duty, would not it have been far more ruinous?—Yes, certainly.

2688. Would not the loss have been much greater if they could not sell at all?—If they could not have sold at all, the loss to them would have been greater of course.

2689. Mr. *W. Martin.*] Do you think that foreigners would take a smaller price for their hops if they had not to pay 25 *s.* duty?—No, I suppose they want, as we do, to get as much as possible.

2690. *Chairman.*] When you said that the Weald of Kent hops were selling at 50 *s.*, had not the planter to pay duty out of that?—Yes.

2691. If there had been no duty, would not he have been far better off?—Yes.

2692. Do not you think that if there had been no duty, the price of English hops might have been higher than it was?—I think so.

2693. Mr. *B. Blakemore.*] Was not your own crop very large last year?—Not quite so large as the year before.

2694. Have you calculated what your duty would have amounted to if you had paid upon your unpicked hops?—I think I let three acres at least grow away, which would have produced, if they had been picked, something like a ton an acre.

2695. Then a large crop is a nuisance to you?—It is a great nuisance.

2696. Was not that the effect of the large crop?—Yes, it was the effect of the large crop of the preceding year. We had two large crops together.

2697. Is not that enough to ruin the hop planters?—It certainly is.

2698. Mr. *J. Locke.*] Without reference to the duty?—Without reference to the duty; but it is very much aggravated by the duty.

2699. But, supposing there were no duty at all, would not it still be a ruinous thing?—As a land agent, as well as a farmer, I must say that I dread a very large crop of hops.

2700. Sir *Edward Dering.*] You would dread that, totally irrespective of the duty?—Yes; but very much more so, having the duty.

2701. Mr. *J. Locke.*] Supposing there were no duty at all, neither Excise nor Customs, and you had foreign hops coming in fairly, would not it have a great effect upon your hops?—I have lived long enough to know this, that we have been threatened with ruin several times during the course of my time by free trade. The duty upon foreign wool, many years since, was taken off, and then all the flockmasters were to be ruined. Next came the importation of foreign stock; then we were to be ruined. The repeal of the corn laws was to ruin us. Now, having lived so long as I have done, I find protection has done me very little good; and therefore I should like to have a little spice of free trade in hops as well as other things.

2702. Mr. *Knight.*] In all the things you have mentioned, is it not the fact that you have had almost an unlimited demand; that, for instance, you are not afraid of too many cattle being bred, or too much corn being grown, or too much wool; have you ever heard that large crops of these things are injurious to the grower?—No.

2703. But you do think a large crop of hops injurious to the grower?—If we grow more than a year's consumption, I do.

2704. Then is there a parallel between the articles you have mentioned and hops?—There may not be.

2705. *Chairman.*] Would not the same fact, of a limited market, which affects the home grower, also affect the foreign grower?—Certainly.

2706. Mr. *Beach.*] Is not there this difference between the articles you have mentioned, that they are not deteriorated by keeping as hops are, after the first year?—Yes.

2707. Mr. *Knight.*] I think you said you were afraid of a large crop of hops because the demand is limited?—I always find that after a large crop of hops the rents are not so well paid as when there is a more moderate crop.

2708. If there was an unlimited demand, would it make any difference?—Certainly not.

2709. The demand being limited, is not it the case that any large quantity of

of hops coming from abroad must supplant the quantity of hops grown in England?—I certainly am not afraid of it myself.

2710. Supposing a certain number of cwts. of hops are wanted in England, and are now grown in England, if half the quantity comes in from abroad, must not it supplant that quantity grown in England?—Of course it must.

2711. Then must it not cause a considerable quantity of hop land to go out of cultivation in England?—I do not believe that will be the case.

2712. Supposing the demand limited, and we have a certain quantity found in England, and that the supply of half that quantity were to come from abroad, if the people do not drink more beer, and if the demand still continues limited, does it not appear to you that the large importation from abroad must cause a less demand for English hops?—Probably it might if they were of equal quality.

2713. Mr. *Martin.*] Does not that question depend upon the plain fact of whether the hops come in, or whether they do not?—Yes.

2714. And do you say that you do not expect them to come in?—Certainly not.

2715. *Chairman.*] If the market is limited for the consumption of English hops, would not it also be limited for the consumption of foreign hops?—Yes.

2716. If English hops deteriorate by keeping, would not foreign hops deteriorate by keeping also?—Yes.

2717. Would not the competition between English hops and foreign hops be as fair a competition as between foreign corn and English corn?—Yes.

2718. Sir *Edward Dering.*] I have been given to understand that foreign yearlings do not deteriorate to more than 20 per cent., while English yearlings will deteriorate 25 per cent.; does that agree with your experience?—I have no experience upon the subject.

2719. Sir *John Shelley.*] Knowing the nature of the hop plant, if anybody has said so, do you believe it is so?—No, I do not.

2720. Mr. *B. Blakemore.*] I think I have had from you that your opinion decidedly is, that English hop planters would be better off under entire free trade than they are now?—Yes, I think so.

2721. Do you think that the brewers would be better off?—I think so.

2722. Would the cultivation of English hops be diminished by the import of foreign hops?—I think not.

2723. Then the Government would be the only loser?—Yes, in my opinion.

2724. Is it your opinion that the revenue would be sacrificed, and that that would be the only sacrifice made?—I think so.

2725. The revenue now gets something like 320,000 *l.*; do you think that under an entire freedom from the Excise duty an import duty could be collected to anything like that amount?—No; I suppose it would be quite useless to ask for the Customs duty to be retained, otherwise, of course, I should rather have it.

2726. Mr. *Knight.*] Do you think it would be a good thing or a bad thing if half the hop gardens of England were thrown out of hop cultivation?—I do not know at all; if the hop plantation was reduced in that way, what would become of the labourers; but I am satisfied that, in the district in which I reside, we should not be able to employ half the persons we do now, if the cultivation of hops were given up.

2727. As regards the hop grower, would it be better or worse?—I think it would be better.

2728. Do you think it would be better for those who are obliged to grub their hops?—For a great many, it would.

2729. *Chairman.*] Is it your opinion that, in the event of free trade, the plantations of hops in England would be reduced?—I do not think it would.

2730. You think that the position of the English grower would be improved?—I do.

2731. Mr. *Knight.*] Do you think that no foreign hops would come in?—I do not say that; but I do not think they would come in in such quantities as to make much difference in our prices.

2732. Would not they come in in short-crop years?—No doubt of it.

2733. Will not that destroy the only chance which the hop grower has of making up for bad years?—Yes; at the same time we have a poor chance now, because when the crop is short, the foreign duty is reduced.

Mr. T. Neve.

29 June 1857.

2734. How many years have you been a hop-grower?—Forty-four years.

2735. And you have continued to grow hops, and it has not ruined you yet?—Yes, but I believe that had I not grown hops, I should have been richer than I am.

2736. What has been your object in continuing it?—As I have said before, it would have been impossible for me to have employed half the labourers that I have done without this cultivation.

2737. Have you done it with a charitable view?—Not entirely; for if I were to grub up all my hop gardens, of course there must be a considerable loss.

2738. Do you mean to say that you would have to pay, as extra poor-rates, as much as you now lose by your hops?—Yes; or nearly to that extent.

2739. Sir *John Shelley.*] Is not it the fact that when a man has planted a hop garden he has invested in the land a large amount of capital?—Yes, he has.

2740. And that he does not like to sacrifice that in grubbing up a garden at once?—Just so.

2741. He looks forward to good luck to bring in a return?—Yes.

2742. Mr. *Knight.*] Do you think that there is any other crop that you would have continued to grow upon your farm for 44 years at a loss?—There is no other crop which would have required anything like the manual labour that the hop-crop does; I do take credit myself, but it would be a serious matter in our district if the labourers were thrown out of employment.

2743. It is not only you who have grown hops in that way, but probably the whole of the hop planters of Sussex?—It is very much so.

2744. Mr. *W. Martin.*] Is not this the true view of it, that it is considered a kind of lottery, in which there are great prizes and some blanks, and people like to try their chance in the lottery?—It is much as it used to be with the State lotteries, that although upon the aggregate those who purchased tickets were sure to be the losers, yet you always found people foolish enough to buy the tickets, because one man in a thousand drew 1,000*l.* or 10,000*l.* prize; and just so is it with the hop growers.

2745. Would that motive account for persons carrying on business at a loss for several years, with the hope of getting a prize?—Yes.

2746. Mr. *Knight.*] You have said that you think that foreign hops would come in in short-crop years?—Yes.

2747. Sir *John Shelley.*] Should you expect, in your opinion, that a great many will come in in a short-crop year?—It is just possible they may come; but I should not suppose that they keep a lot of hops bottled up abroad to inundate the market with.

2748. Mr. *Beresford Hope.*] Is not their crop changeable, like yours?—Yes.

2749. Mr. *Knight.*] Must not the importation of foreign hops have the effect of reducing the price at those particular times when you have short crops in England?—It might be so, certainly.

2750. Will not it then take away all those chances of prizes that you were speaking of?—Removing the duty would much lessen our losses.

2751. *Chairman.*] You were asked whether the importation of foreign hops in scarce years would not reduce the price of English hops in scarce years lower than it is now?—I think it is probable it would.

2752. But you would not, in an abundant year, have lost the large amount of Excise duty that you have now?—Certainly not.

2753. Do you think that the foreigner, in an abundant year, could afford to take a less price than the English grower?—It is my opinion that, in the Wealds of Kent and Sussex, the loss upon the plantations during these three years has been, upon an average, not less than from 40*l.* or 50*l.* an acre.

2754. Mr. *Brand.*] What three years do you speak of?—1854, 1855, and 1856. 1854 was a blight; 1855 was a very large crop, when many planters lost as much as they did by the blight.

2755. *Chairman.*] Do you think that the extra gain, by the existence of the Customs duty in scarce years, does not compensate for the loss inflicted by the Excise duty in abundant years?—Nothing like it.

2756. Mr. *Knight.*] Has this caused many hops to be grubbed in the Wealds of Kent and Sussex?—A great many have been grubbed.

2757. And

2757. And have many farmers broken in consequence of the loss of 50 *l.* an an acre?—A great many of them are much distressed.

2758. Supposing a man to farm 50 or 60 acres of hop lands, would not the loss of 50 *l.* an acre ruin that farmer?—It would.

2759. Have there been more bankruptcies than usual amongst them lately?—There have been lately a great many.

2760. Sir *John Shelley.*] Are you aware of planters having applied to the Chancellor of the Exchequer for a postponement of the payment of the duty?—Yes, I am.

2761. Was that upon the ground that they found a difficulty in meeting the payment?—Yes.

2762. Mr. *Knight.*] Are you aware of the price of foreign hops abroad?—No, I am not.

2763. Has your opinion that foreign hops cannot come in to compete largely with English hops been formed without having looked at the subject, or knowing anything about it?—I judge of it from what has occurred in previous years.

2764. *Chairman.*] Do you know at what price foreign hops have been sold in England?—Occasionally.

2765. Mr. *B. Blakemore.*] Do you think any actual good arises from marking the different crops of hops?—I think if they were not marked there would be some difficulty, supposing they were false packed, or some tricks played upon them, in finding out who was the grower.

2766. Do you think it is a public benefit?—In that respect I should say it was.

2767. And in any other aspect is it a public advantage to them?—Of course if a hop grower has earned a good name, it is an advantage to him to have his name upon his hops.

2768. And so far an advantage to the public?—Yes.

2769. Is marking generally adopted in the trade?—We are compelled to mark.

2770. Do any hops get into the market which are not marked?—No, we are compelled by law to mark them.

2771. *Chairman.*] Does not the exciseman mark them himself?—He puts on what he calls the excise mark. We are compelled by law to mark the pockets before they are filled, with the name of the parish where they are grown.

2772. Mr. *B. Bakemore.*] Do you mark the weight?—The weight is put on by the exciseman when he comes round.

2773. Sir *John Shelley.*] Does not that answer which you gave with reference to good management by a particular grower, apply to the case of wool and other things as well as hops?—Yes.

2774. Sir *Edward Dering.*] Is not it easier to distinguish the quantity of wool, than that of hops?—Yes.

2775. Mr. *Knight.*] What do you think is a remunerative price at which you think Sussex and Weald of Kent hops could be brought into the market?—If there was no Excise duty, they could be sold at about 3 *l.*

2776. If foreign hops of equal quality can be brought in at less than 3 *l.*, does not all your argument about free trade fall to the ground?—Yes.

2777. Mr. *J. Locke.*] Have not you said that it would be an advantage to the grower, if the hop duty were taken off?—I think so.

2778. Do you think it would be any advantage to the consumer?—Very little, I think.

2779. Then the Government would be the losers, and the growers and brewers would be the gainers?—Yes.

2780. But the consumer would be very little benefited?—I think not.

2781. Would he be any gainer at all?—I think not.

2782. *Chairman.*] Would the price of hops be any less in the case of free trade?—Very little, I think; in fact, as I have said before, I think it would have been higher the last two years than it has been. It is the fact, that in the Weald districts the duty upon the two last crops of hops would amount to quite 30 *s.* in the pound upon the actual rental that is paid upon the whole of the land.

2783. Mr. *Brand.*] Are you speaking of the Wealds of Kent and Sussex?—I am speaking of the Wealds of Kent and Sussex.

 2784. What

Mr. *T. Neve.*

29 June 1857.

2784. What would it be upon the rents, speaking of Mid-Kent, near Canterbury?—It would not be so much there, of course. There is a larger portion there of the farms in hops than in the Weald of Kent, and it is rather uncertain upon the different farms. One farm will have a larger proportion than another. I am speaking of the average in the Wealds of Kent and Sussex.

2785. *Chairman.*] What is the extraordinary tithe upon hops in the Weald of Kent?—In the Weald of Kent we have very few parishes where there is any extraordinary charge, as the hops were covered by the modus formerly.

2786. Is that the case in many parishes?—It is the case in many parishes. Where an extraordinary charge is levied, it is from 15 *s.* to 18 *s.* per acre.

2787. Do you know what it is in the neighbourhood of Maidstone?—I think there it is rather more.

2788. Sir *Edward Dering.*] Is not it about a guinea there?—I think it is. Perhaps the Committee will allow me to make one observation. In the course of my practice as a land agent I have found that the rents have been much more promptly and regularly paid out of the hop districts than in them.

2789. What would your feeling be with regard to an acreage duty, as compared with the present system of collecting the duty?—I should prefer a 3 *l.* acreage duty to the present system.

2790. Is that the highest that you would wish to have?—I should not like to go far beyond that.

2791. If it were offered to you merely to commute the present duty by an equivalent, which would amount to 6 *l.* 10 *s.* an acre, should you object to that?—Certainly.

2792. You think it would not be for your interest to pay an equivalent acreage duty?—Just so.

2793. Sir *John Shelley.*] Would you rather that the duty should remain as it is now, or have a 6 *l.* 10 *s.* acreage duty, or have all the duty off, and have free trade?—I would rather have free trade, ten times over.

2794. Mr. *J. Locke.*] Would you prefer an acreage duty of 6 *l.* 10 *s.*, or the present duty?—The present duty; but it is monstrous that we should have such a duty. A great outcry was made by different parties about the income tax of 16 *d.* in the pound, when the hop tax amounts to 30 *s.* in the pound, and yet we are obliged to submit to it.

2795. Mr. *Knight.*] Do you know of any remonstrance being made about it?—I have never known any tax so monstrous as this; if it were a tax upon the whole kingdom, it would not last for a day.

2796. Sir *John Shelley.*] Did I rightly understand you to say there was an outcry raised against the income tax, which amounted to 16 *d.* in the pound?—Yes.

2797. What do you consider this hop duty amounts to in the pound?—During the last two years it has amounted to 30 *s.* in the pound on the rental.

2798. Supposing this were a tax upon the whole community, instead of upon a few people who happen to be the unfortunate growers of this necessary article of consumption, do you think there would be a greater outcry raised against a duty which amounted to 30 *s.* in the pound, than against one which amounts to 16 *d.* in the pound?—It would not be submitted to a week, if it were extended over the kingdom.

2799. Mr. *Beresford Hope.*] What relief to you would be gained by simply taking off the war duty?—I think, while you are about it, you had better go the whole hog at once.

2800. Which should you prefer, simply taking off the war duty, or an acreage duty of 3 *l.*?—I should prefer the acreage duty of 3 *l.*

2801. Keeping the present system?—

2802. Mr. *B. Blakemore.*] Supposing the duty had been collected by acres, do you know what the duty paid upon Sussex would have amounted to per annum?—I cannot say.

2803. Do you know that taking the various districts throughout the kingdom, the highest amount of acreage duty would have been 11 *l.* 7 *s.* 1 *d.*, and the lowest would have been something under 1 *l.* 4 *s.*—No, I do not know it.

2804. Sir *John Shelley.*] Supposing that to be so, would not it be an argument for the acreage duty?—Yes.

2805. Mr. *J. Locke.*] Did you say you had been a loser by hop growing?—I did

I did not say that I had been a loser; I think I said that if I had never grown hops I thought I should be a richer man than I am. Mr. *T. Neve.*

2806. Have you been a gainer in the long run?—I have not kept on losing every year. 29 June 1857

2807. *Chairman.*] Do you mean that other crops have paid you better than hops?—Yes.

2808. Mr. *J. Locke.*] Have not you been a considerable speculator in hops?—When they have been low I have held them.

2809. Have not you sometimes made a mistake?—Sometimes I have burnt my fingers.

2810. Have not you done so very often?—Yes, I have done so often.

2811. When you might have got a remunerative price have not you refused it?—I do not mean to say that I never have refused a good offer; but not generally speaking.

2812. Sometimes you have refused a good offer, and hops have gone down?—Yes.

2813. Sir *John Shelley.*] Generally speaking, has not your reason for keeping your hops been that the price in your opinion has not been remunerative?—Certainly.

2814. And you have wished to wait rather than have a certain loss?—Certainly; it is my opinion, and it has been my opinion for many years, that when the Customs duty was 8*l.* 10*s.* we were paying too high for that protection.

2815. Mr. *Knight.*] What do you mean when you say that the Excise duty amounts to 30*s.* in the pound?—It was 30*s.* upon the rent of the land a year. A tenant, we will say, has ten acres of land in hops upon a farm of 100 acres, and I say that he would have to pay the tax collector 30*l.* when he paid the landlord 20*l.*

2816. Is not that from his very great success because he has got so good a crop?—Because he has a large crop, and by that large crop he is a serious loser.

2817. *Chairman.*] The duty converts the large crop into a loss?—Yes.

2818. Mr. *B. Blakemore.*] Has it ever occurred to you, as a land agent, what amount of capital a man should possess who takes a farm, we will say, of 100 acres?—At least 10*l.* an acre.

2819. In a farm of 100 acres in your district how many acres will be hop land?—From five to 10 acres.

2820. Would the farmer require any addition to his capital, or would he be able to manage the hop land, with all their variations of price, with the same amount of 10*l.* an acre?—That would be quite little enough.

2821. Do you think it would require more?—That is generally the calculation made.

2822. Do you think that a man would be safe in taking a farm of 100 acres, including five acres of hop land, with 1,000*l.* capital?—I think he would.

Mr. *Patrick Simpson Punnett*, called in; and further Examined.

2823. *Chairman.*] IN your former examination you told us that, on the whole, the protective system was a benefit to the grower?—Yes. Mr. *P. S. Punnett.*

2824. How do you account for the fact that, under that system, there have been so many applications for postponements and so many years of distress?—I account for that by there being by far too large a supply for the demand for use in these years, arising from the produce being so large.

2825. Do you think that the growth is too large?—I think the growth was too large in those years for the demand.

2826. Was not the duty in those years a burden which the planters felt heavily?—Undoubtedly it was one of many; but I mean by that, as I explained the other day, that I look upon the duty solely as an item of the cost of production of hops; and, of course, the duty being an item in the cost, falls, with all others, very heavily on the grower when he produces more hops than can be consumed in the country. The fall in the price was a greater evil in my opinion than the duty.

2827. Mr. *Knight.*] Is not it an item of cost which falls less heavily than any

Mr. *P. S. Punnett.*

29 June 1857.

any other, because it has not to be paid until a long time after the hops are sold?—It is an item of the expense, or the cost which the hop planter pays.

2828. *Chairman.*] Would not it have been a great relief to you in those years if you had not had that amount of duty to pay?—No doubt, in all those years it would be a great help to him; of course it would be a help to the extent of 18 *s.* a cwt., but I do not think he would get the same price, let him grow as many as he would.

2829. But still, do you think that the system of the Excise and Customs duties as it at present stands is beneficial to the farmers?—No, I do not go to that extent; I should prefer saying that the reduction of the Excise duty, the Customs duty remaining where it is, would be a benefit.

2830. Was not the Customs duty considerably higher than it is now some years ago?—Yes, previous to 1846.

2831. Were the home growers any better off when the Customs duty was higher than now, than they are now since it has been reduced?—I think so, considerably.

2832. Were not there as many applications for postponements of the duty, and statements of distress to the Chancellor of the Exchequer, when the duty was at the higher rate, than there have been since it was reduced?—I believe so; of course I cannot speak to those facts myself. I only began planting in 1843, and the first application in consequence of distress was, I think, in the year 1849, in consequence of the excessive crops of hops grown in 1846, 1847, and 1848.

2833. Consequently, your experience of hop growing does not go far enough back to enable you to speak on this point?—No. There has been a statement handed in to the Committee as to how often the planters have applied for relief.

2834. It does appear from that return that there were just as frequent applications for postponements when the Customs duty was higher as there have been since it has been reduced; does not that show that the higher protection is no remedy for the evils inflicted by the Excise duty?—No, I do not think it does; I do not think that is connected with the question at all.

2835. Do you think that protection is of no service?—I said just now that I thought protection was a great benefit previous to 1846; and I justified that by saying, that the high duty, previous to 1846, had kept out the foreign hops from competition with English hops in those high-priced years, which we must necessarily have to compensate us for the losses which we now incur in the low-priced years; but that since the duty was reduced, in 1846, the planters have been damaged; large quantities of low-priced hops have come in at a time when high prices would exist, and have lowered the price of English hops in the market; and I maintain that the higher duty was a benefit to the English producer.

2836. How do you account for the circumstance, that between 1826 and 1827 there were as many postponements of the duty as there have been between 1846 and 1857?—Between 1846 and 1857, to my knowledge, there have been only two postponements with regard to one duty, and one postponement with regard to last year.

2837. Since the reduction of the Customs duty has there not then been less distress among the hop planters than there was before?—Yes; decidedly, there has been less distress among the hop planters than there was before, as far as I know, with regard to the home produce; but I maintain that that does not arise from the duty being so much in excess, as from the fact of large crops having been obtained three consecutive years, which has brought the supply to be in excess of the demand; the planters have suffered from the diminution in price, from having a limited market rather than from the excess in the duty; I think I can illustrate that. As it is a subject that a great deal has been said about, I have been looking to the cost of production per acre in Sussex and in Mid-Kent, from the year 1850 up to the present time.

2838. Sir *John Shelley.*] How do you get at that?—In this way. There are returns telling us how many hundredweights of hops are grown in each collection; there are returns telling us how many acres there are in each collection, and there is evidence as to what is the cost of production per acre from Sussex and from Mid-Kent, and from the Weald of Kent, and I can give evidence from East Kent upon the same subject. I know what it is in East Kent; and I can likewise

likewise furnish the Committee with the average prices that the different varieties of hops have fetched in these several years; and if you put the cost of production per acre and the cost per hundredweight together, knowing the quantities grown in these years, you get at what the total cost is per acre, and you can say how much an acre of hops has cost.

2839. Sir *Edward Dering.*] You get a fair balance-sheet in that way?—I get a fair balance-sheet in that way. I can tell you what number of hops I get, and what the price put upon them, and what the cost was per acre, and I shall show that the cost of production is nearly similar in each district. I put the cost of cultivation of Sussex hops at 23 *l.* 10 *s.* per acre. I can justify that upon the authority of Mr. Webster, who put it at 22 *l.*; and Mr. Lawrence Reeve, who made it from 22 *l.* to 24 *l.* 13 *s.*, and he abundantly confirmed it himself. When I was chairman of a large committee of planters from different parts of the kingdom in 1849, one main point that we had to determine, in order to make a statement to the Chancellor of the Exchequer, was, what was the cost of production in each district, and we then agreed that it was less in Sussex than it was in the Weald of Kent. There were men sitting on that committee from all parts of the kingdom: Sussex men, Mid-Kent men, and East Kent men; and we then agreed between ourselves what was the comparative cost of production in all the different districts. Sussex was put down lower than the Weald of Kent, the Weald of Kent was put down lower than Mid-Kent, and Mid-Kent lower than East Kent.

2840. Sir *John Shelley.*] Are you aware that your evidence is in direct contradiction of the evidence given by Mr. Neve?—I am aware that it is; and I am rather anxious that I should be examined upon this point, because I believe that what I say is the truth.

2841. Did not the committee to which you referred sit in 1849?—I think it was in 1849. It was the substance of the representation which we made to the Chancellor of the Exchequer at the time. I merely mentioned it in order to show that my opinion was justified by the fact, that these men agreed with me. In my calculation, Sussex is put down at 23 *l.* 10 *s.* per acre.

2842. Is that your present conclusion, or the conclusion based upon the opinion formed in 1849?—That is my present conclusion; but it is supported by evidence taken in 1849.

2843. Mr. *Knight.*] Is it not also supported by the evidence taken before this Committee?—Yes; I have heard witnesses in this committee-room state that Sussex hops cost 23 *l.* 10 *s.* per acre, and that they cost 37 *s.* per cwt. for picking, drying, and duty; we can then form the three different items of cost.

2844. Where do you get that statement of the cost of drying, picking, and duty from?—Mr. Webster proved it, Mr. Lawrence Reeve proved it, and I think that Mr. Tylden Smith mentions something of the same kind.

2845. *Chairman.*] The Committee have had it variously stated at from 36 *s.* to 44 *s.*?—Yes, I say 44 *s.*, and I can justify my calculation for my district.

2846. Mr. *B. Blakemore.*] Do you, for the purposes of this calculation, put it at 37 *s.*?—Yes, that is proved; in 1856 they grew an average crop of 12 cwt. an acre in Sussex, and they got an average price of 68 *s.* a cwt., so that the crop cost 45 *l.* 14 *s.* per acre. I must now go to the Rochester collection, which I call the Kent hops.

2847. *Chairman.*] In what year is that?—1850.

2848. Sir *John Shelley.*] Are not some of the estimates that you make in consequence of the evidence given before this Committee?—Yes. I should mention, that in the cost of production of a crop of hops, it does not make very much difference what kind of hops they are, and I am about to prove it by taking a series of years, from 1850 to 1856.

2849. Mr. *Knight.*] Does the cost vary much in different years?—No.

2850. So that what was true in 1849 is true now as to the cost of the production, or nearly so?—Yes; I should think so. Then Rochester collection includes the hops grown in Mid-Kent and Weald of Kent; but does not contain any grown in East Kent; there I have put down the cost of production at 26 *l.* an acre. I have given evidence of that myself, and I have put down the cost of the subsequent operations at 2 *l.* 4 *s.* per hundredweight.

2851. *Chairman.*] Is that for 1850?—No; the 26 *l.* per acre, and the 2 *l.* more per hundredweight will go through all the calculations from 1850 to 1856. The Sussex calculation is 23 *l.* 10 *s.* per acre, and 37 *s.* per hundred-

Mr. P. S. Punnett.

29 June 1857.

weight, which go through all the years; so that in 1850 at 12 cwt. an acre, it has cost the planters 45 *l.* 14 *s.* an acre.

2852. Mr. *Brand.*] When you say that it produced 12 cwt. per acre, do you quote any Parliamentary return?—Either of the Parliamentary returns would prove that.

2853. How did you ascertain the price of 68 *s.* per cwt.?—I compared the prices that had been supplied to me by different parties with hops that had been sold at the company's establishment.

2854. *Chairman.*] You say that in 1850 the average price of Sussex hops was 68 *s.* per cwt.?—Yes, I do.

2855. From the return I have, which was published in the Borough of different years, I find that in the year 1850, the average price of all kinds of hops was 70 *s.*; were Weald of Kent hops selling for 68 *s.* when the average price of all hops was 70 *s.*?—I do not say that 70 *s.* is right; I say that 68 *s.* is near the mark.

2856. Sir *John Shelley.*] How long has your company been established?—We were established in 1847.

2857. *Chairman.*] Will you continue your statement?—In 1851, 5 cwt. an acre was grown, 5 *l.* 15 *s.* was the average price, and 32 *l.* 15 *s.* was the cost; that was in Sussex. The same year in the Rochester collection there were 6 cwt. grown, and they cost 39 *l.* 4 *s.* an acre. In 1852 there were 11 ½ cwt. grown in Sussex, and they cost 44 *l.* 15 *s.* an acre. Then in the Rochester collection in the same year, 1852, there were 11 cwt. grown, and they cost 48 *l.* 8 *s.* an acre. The sum that I am now giving does not depend upon the price per cwt.; it is the cost per acre, and the cost per cwt. of getting the crop to market; the price of the hops does not come into the calculation.

2858. Sir *John Shelley.*] Where have you obtained these figures?—We have it in evidence that the cost of 23 *l.* 10 *s.* is stated to be the average cost of cultivation up to the time of picking in Sussex. Then it has likewise been proved that 37 *s.* per cwt. is the cost of getting the produce to market, therefore the price at which hops are sold has nothing at all to do with the comparison, it is based upon the quantity of hops grown per acre in the district, the cost of cultivating an acre of hops up to the time of picking, and the cost of getting the quantity grown to market per hundredweight, so that the price is not an item in the calculation. Then in 1853 there was 6 ½ cwt. an acre grown, at a cost of 35 *l.* 10 *s.* in Sussex; and in Rochester there were 6 ½ cwt. grown, at a cost of 39 *l.* 9 *s.* In 1854, which was the short-crop year, there were 2 cwt. grown in Sussex per acre, at a cost of 27 *l.* 4 *s.*; and in Rochester there was 1 cwt. 2 qrs. 4 lbs. grown, at a cost of 29 *l.* 7 *s.* In 1855, 14 ½ cwt. were grown in Sussex, and they cost 50 *l.* 6 *s.*; in the Rochester collection there were 13 ¼ cwt. grown, at a cost of 55 *l.* 3 *s.* Then in 1856 there were 11 ½ cwt. grown in Sussex, at a cost of 44 *l.* 15 *s.*; and in Rochester there were 10 cwt. grown, at a cost of 48 *l.* Upon that calculation the average cost per acre would be 40 *l.* 2 *s.* 9 *d.* in Sussex, and 43 *l.* 18 *s.* per acre in the Rochester collection. That is the cost of realising and of growing the crop.

2859. Sir *John Shelley.*] Does not that include the Weald of Kent hops?—Yes.

2860. It does not put the best hops by themselves?—There is no return except for this year that can separate the good hops from the inferior hops, or those grown in the Weald of Kent from those grown in other parts of the Rochester and Canterbury collections.

2861. Mr. *B. Blakemore.*] You gave us the average cost of production and getting to market in each collection; can you tell us the average weight grown per acre?—No, I have not that, but I have the average cost, and it is very easily found; I say that the duty is not so oppressive to the planter as is imagined. It is the same with the total cost of growing hops per acre in different localities; for instance, the difference between the Sussex and the Rochester collection is not so great as people imagine, but it is in consequence of the variation in the price that it becomes so oppressive.

2862. Sir *John Shelley.*] Is not the fact of the variety of price at all, a consideration in the growth of a particular article?—Of course; but they cannot grow as good hops in Sussex as we grow in Kent; that is the result of the soil.

2863. Do you not consider that if a man grows an inferior article, for which he

he gets an inferior price, it is not quite just that he should pay the same duty upon that as a man with the high-priced hops?—I do not hesitate to say that I do not think it is fair.

2864. Mr. *John Locke.*] If you had an acreage duty, would not there be an inequality still?—It would be quite as great.

2865. Mr. *Brand.*] You have given the Committee the cost of growing hops per acre in the Sussex and Rochester collections; can you give us the returns of the receipts from those two collections in those same years?—There are no statistics to prove the price that hops have fetched, and therefore I could not give that from any authority but my own.

2866. Sir *Edward Dering.*] The substance of the evidence that you wish to lay before the Committee is this; that the cost of bringing the hops to market from Sussex is 40 *l.* 2 *s.* 9 *d.*, and in the Rochester collection it is 43 *l.* 18 *s.*?—Yes, because their Sussex hops come very near the Weald of Kent hops, and the Mid-Kent hops are not much in excess of Weald hops; but I could not bring in Canterbury, because Weald hops are grown in the Canterbury collection.

2867. Sir *John Shelley.*] Is it not the fact, that owing to there being no returns, separating the best class of hops from the others, there is no means of coming to a calculation upon it?—Yes, except as to Canterbury and Rochester collections.

2868. Is there not any way to account for the difference between the cost of 23 *l.* 10 *s.* in Sussex and 26 *l.* in Kent?—No; because no one has given us any evidence to prove how the 23 *l.* 10 *s.* has been made up.

2869. Can you, for the information of the Committee, explain what it is that makes the difference between the cost of 23 *l.* 10 *s.* in Sussex and of 26 *l.* in Kent?—I cannot speak upon that point. I have proved the cost of hops in Mid-Kent, but I cannot prove the cost of hops in Sussex; and I would say that, with regard to the other calculations, which Dr. Monckton gave the Committee the other day, which he took from a book written by a gentleman who lives at Wrotham, that if I had to include all that he does in my calculation, I should have to raise my 26 *l.* higher; indeed, Dr. Monckton stated that his was an exceptional state of things.

2870. *Chairman.*] Is that statement which he gave, and the book to which he spoke of with reference to a particular kind of land?—The evidence that he gave was from a work that is found in the Royal Agricultural Society's Journal; a prize essay, by Mr. Rutley; he quoted it from another book, which quoted it from the first. My statement, so far as regards the correlative cost of hops in different districts is now complete.

2871. Another point to which you have spoken before the Committee, was that foreign hops would undersell British hops in a year of abundant growth; was not that so?—No, I did not say so; I said that the importation brought about a lower range of prices for British hops in this year. Of course, when you speak of hops underselling others, you must compare hops of the same quality.

2872. Did I rightly understand you to say, that in the year when English hops were selling at a low price upon an average of 4 *l.* or 3 *l.* 10 *s.*; foreigners could undersell us?—I said that a day or two ago, we had had some Belgian hops placed in our hands for sale, which without taking in the 2 *l.* 5 *s.* duty which they would have to pay if we sold them, would be worth 2 *l.* 2 *s.* a cwt. Now those hops were pronounced by parties in the Borough to be quite equal to any Sussex hops which we had for sale.

2873. So that these Belgian hops could with the duty be sold at 4 *l.* 7 *s.*?—Yes, at 4 *l.* 7 *s.*, and they were offered for sale by us, as commission men, at that price.

2874. How do you account for it, that when the average price of hops is 6 *l.* 6 *s.* or 7 *l.* 7 *s.*, or even higher than that, foreigners do not even, in spite of the duty, come in and undersell you?—Because I think that the foreign duty is just sufficient to keep them out until the prices become high, but I do not know that foreigners do not come in; I can prove that they do come in every year.

2875. Sir *Edward Dering.*] May not that be in some measure accounted for by the fact, that the foreigners do not prepare for our market?—It is of no use for the hops to come in, if there is not a market for them. There is a limited demand for hops, and if in some years they overstock the market, which is already

Mr. *P. S. Punnett.*

29 June 1857.

already glutted with hops from abroad, it cannot be said that there is a market for either of them.

2876. *Chairman.*] Is not it the fact, that the market is limited?—Yes.

2877. If foreign hops equally good with British hops can be brought into this country at 4 *l.* 7 *s.*, when British hops are selling at 6 *l.* 6 *s.* or 7 *l.* 7 *s.*, why do not they come in?—Because I apprehend that they are not ready with them at the time. But I do not know that it is the fact that they do not come in.

2878. Do not you know of years in which British hops sell at 6 *l.* 6 *s.* or 7 *l.* 7 *s.*?—Yes, I do.

2879. How do you account for the fact, that foreigners do not come in in those years and altogether undersell them?—Because, probably there is a demand in their own country for hops, and they cannot spare them.

2880. Sir *Edward Dering.*] Do you know anything personally of the quantity of hops imported in those years?—I do. I have statements here which will prove the price at which foreign hops are sold.

2881. Sir *John Shelley.*] Where did those hops come from, which you state to have been so good?—They were Bavarian and Belgian.

2882. From what part of Belgium did they come?—I do not know, I think they were from Popperhinge and elsewhere.

2883. Have you had the same quality before?—Yes; Popperhinge hops are not a scarce article.

2884. What price have hops of the same quality which you allude to as being as good as Sussex hops averaged in former years?—That I cannot tell.

2885. Have they undersold Sussex hops?—Yes, and with regard to other hops it is the same thing; from September 1854 to April 1855 there were 102,736 cwt. of hops positively used in the country.

2886. What hops were those?—Bavarians and Belgians.

2887. Will you confine yourself to Belgian hops at present?—During the period that I was mentioning, from September 1854 to April 1855, Belgian hops were selling at 14 *l.*

2888. Had you Belgian hops to sell in that year?—Yes, we had a good many.

2889. Did you see them yourself?—Yes.

2890. What was their quality?—They competed with Sussex hops at the price of 14 *l.* 14 *s.*

2891. Were the Sussex hops sold at 14 *l.* 14 *s.*?—Yes, and the Belgian hops were sold at 14 *l.*

2892. How do you account for people giving 14 *l.* 14 *s.* for Sussex hops, if Belgian hops of the same quality were worth 14 *l.*?—I cannot tell whether the Belgians were better than the Sussex. I was speaking of market value.

2893. Does not the fact that one was selling at 14 *l.* and the other at 14 *l.* 14 *s.* tend to show that the Sussex hops were the best of the two?—Perhaps they were slightly better than the others, but there is a prejudice against Belgian hops from their not being known. When people look at Sussex hops they know the mark and the name, but as to the Belgian hops there is no mark.

2894. Mr. *Knight.*] Do you put down that extra 14 *s.* to prejudice?—Possibly it might be so. It is a hard thing to put a value upon people's prejudices.

2895. Sir *John Shelley.*] Practically, did the Belgian hops fail to compete successfully with Sussex hops in consequence of what you call prejudice?—I think that the Belgian hops did compete with the Sussex hops, and that the market value showed that they were nearly of the same value, and with the 2 *l.* 5 *s.* duty upon the Belgian hops that came in here, it served the merchant's purposes, who imported them, to sell them at 14 *l.*; whereas, Sussex hops were selling at 14 *l.* 14 *s.* That was with regard to the growth of 1854; it took place in what we call the season of 1854, until the following spring.

2896. In what year were they imported?—I should say in 1854; they were new hops.

2987. *Chairman.*] Was not that the year in which the duty upon foreign hops was reduced to 4 *l.* 5 *s.*?—Yes.

2898. Sir *John Shelley.*] Was not the duty equal upon both foreign and English hops; had not the planter to pay 1 *l.* and the foreigner to pay 1 *l.*?—Yes.

2899. And

2899. And had not the Sussex hops 14 *s.* advantage in the market?—Yes, I should say so.

2900. Mr. *B. Hope.*] Is not there a greater disadvantage in paying the Excise duty than in paying the Customs duty, arising from the trouble in paying the duty?—No, there is no disadvantage in that respect; if we have a troublesome fellow an assistant, or any one of that sort, we report him, and the matter is soon set right.

2901. Has not the foreigner an advantage over you in the fact that he need not pay the duty till he sells his hops?—Yes, that is a great advantage to him.

2902. Is not the Customs duty in favour of the foreigner as against the English grower?—I should say that the bonding system would be a great advantage to the English grower.

2903. At present the bonding system is an advantage to the foreign grower as against the English grower?—Yes.

2904. *Chairman.*] In the year 1854, when the British and the foreign hops were each paying a 1 *l.* duty, did not the foreigner pay his 1 *l.* duty more easily than the British grower, in consequence of paying it when he sold his hops?—Undoubtedly.

2905. Mr. *B. Blakemore.*] Do you know the difference between the cost of carriage from Belgium to Mark-lane, and that from Sussex to Mark-lane?—I do not know, but I have heard the freight from Belgium stated at about 8 *s.*; but I am not a hop merchant, and I do not know. I cannot give any information about that of my own knowledge.

2906. If the Excise duty were taken off would not the hop grower be able to sell his produce cheaper by the amount of the duty so taken off?—Yes; if he liked no doubt he might, he would be able to do it.

2907. Would the consumer benefit by that?—That depends upon what price he pays.

2908. Whatever the duty upon his crop amounts to per cwt., would not the grower be able to sell his crop cheaper by the amount of the duty which he pays?—Yes; because the duty is an item of the cost, no doubt.

2909. Would the consumer benefit by that?—Not in the least, in my opinion. I do not think that the fact of the planter paying an Excise duty of 18 *s.*, or of the importer paying a Customs duty of 2 *l.* 5 *s.* upon the hops which he imports ever affects the price to the consumer at all; that is entirely regulated by the supply and demand for hops in the market; if they are plentiful they are cheap, and if they are scarce they are dear.

2910. Mr. *Brand.*] At the last meeting of the Committee you gave some evidence with regard to a graduated duty upon hops, did I rightly understand you to say that there should be a fixed sum payable to the Exchequer?—No; I did not say that there should be a fixed sum; I said that the duty might be so graduated as to bring in a certain given sum into the Exchequer, not exactly a fixed sum, but that it should be so graduated as to bring in nearly the same amount to the Exchequer annually, but still to help the planter very materially.

2911. Sir *John Shelley.*] Are you aware whether the present duty is anything approaching to a fixed sum, that the Exchequer can depend upon from one year to another, or whether there are not enormous fluctuations in the produce of the hop duty?—We know perfectly well that the money going into the Exchequer from the hop duty varies very much.

2912. So that it cannot be depended upon from one year to another?—No; I want to explain what my notions upon that point are, and upon what principle I should go in testing the notion of the graduated duty; it is not a new one to me because I have had some chat with the late Mr. Hodges upon it some years back; I put it in this way: there were certain years, we will say, during the last 20 years when hops were sufficiently remunerative to be so grown, that the theory of the hop duty was practically carried out, that hops should make a price which should produce a sufficient return to enable us to say that the consumer paid the duty. Then taking 20 years back from 1836 to 1856, I find that there are 11 years (leaving out the years of excess, when there were large crops or high prices), during which the crops were paying over 5 *l.*, which we could say were remunerative, and that the duty paid upon the average of those years was 165,000 *l.* old duty. So that out of these 20 years there were only 11 years in which, according to my notion, the planter really obtained such remu-

Mr. *P. S. Punnett.*

29 June 1857.

nerative prices, as to be able to say that the consumer, in paying the planter for his crop, really paid the duty; it might be in individual instances very different, but upon the average of cases it was so. There were paid 165,000 *l.* of old duty upon the average of these years; the old duty is 10 *s.* 9 *d.* nearly per cwt. That is the way in which we usually calculate the duty; a certain number of pounds representing a certain number of cwts. of hops grown, so that taking 165,000 *l.* as being about the amount of duty when a man can afford to pay 18 *s.* a cwt., I have graduated the scale, so that a higher duty is paid when there are higher prices; the following table will represent my scheme.

[*The same was handed in, and is as follows:*]

GRADUATED DUTY ON BRITISH GROWN HOPS.

When the quantity grown equals	-	100,000 *l.*	old duty, the duty to be	25 *s.*	
„	„	125,000 *l.*	„	„	22 *s.* 6 *d.*
„	„	150,000 *l.*	„	„	20 *s.*
„	„	170,000 *l.*	„	„	18 *s.*
„	„	190,000 *l.*	„	„	16 *s.* 6 *d.*
„	„	210,000 *l.*	„	„	14 *s.* 6 *d.*
„	„	230,000 *l.*	„	„	11 *s.* 6 *d.*
„	„	250,800 *l.*	„	„	8 *s.*

When the quantity grown is not equivalent in weight to 100,000 *l.* old duty, the duty per cwt. to be 25 *s.*

When the quantity grown exceeds the equivalent in weight to 250,000 *l.* old duty, the duty to be 8 *s.* per cwt.

The old duty is 10 *s.* 8 ¾ *d.* per cwt. or 1 *d.* per lb. and 15 per cent thereon.

By this means there would be a fair average amount brought into the Treasury by the hop duty, and the oppressiveness of the duty would be greatly diminished in the low-priced years, when you cannot get the duty out of the hop growers fairly without a great deal of trouble. I think that you will get over the difficulties and all the troubles of the hop duty question if the above scheme and the bonding system were combined; that is my opinion. The average is not that of those years which we term the excessive years, when we get 15 *l.* a cwt., but of those years when we get something over 5 *l.* per cwt.

2913. Sir *E. Dering.*] Supposing that your plan were adopted, what amount would be received by the Exchequer?—Upon an average, about 170,000 *l.* of old duty.

2914. Mr. *Brand.*] What is the amount of the old duty?—It is 10 *s.* 8 *d.* a cwt.; the whole duty is 18 *s.*

2915. Mr. *Ball.*] Would Government receive about the same upon this graduated scale as it does now?—No, I do not say that; because there are years, such as last year, and the year before, when we paid a great deal more, but I look upon it in this way, that the theory is that the consumer pays the duty, but that in fact sometimes it is not so.

2916. Sir *John Shelley.*] It should be a tax upon beer, in fact?—It should be a tax upon beer.

2917. There are certain years in which the theory works as it is intended, but there are other years when, in consequence of the oppressive amount of the tax, the producer never gets it back; have not you taken those years only in which he does get it back, without going into the exceptional years when he gets a great deal more?—Yes; and also those years when he does not get it back at all.

2918. Mr. *Ball.*] That graduated duty which you are now contemplating is beneficial to the grower; would it be adverse to the Government?—No; if it be a paternal Government, prepared to help us through when things go hard with us, without great detriment to the public revenue. By the plan which I have suggested they may be calling upon us for a little more when we can afford to pay it better, for there is no such duty upon hops at present as 20 *s.*, or 22 *s.* 6 *d.*, or 25 *s.*; that compensates the Treasury to some extent for the lower rate which they would get when the duty is small.

2919. When this was put before you at the last meeting of the Committee had you considered it as you have now?—No; I was asked to turn my mind to it.

2920. Have

2920. Have you turned your mind to it?—Yes.

2921. And as the result of further consideration you have arrived at this scheme?—I have; I think it would work well.

2922. It would relieve the grower of hops in a period of great pressure; it would not be adverse to the Government upon the average of years, and therefore it is a benefit to you without being injurious to the public; is not that so?—Yes, there would be some slight modification, but those would be really the facts.

2923. Do you therefore give your testimony in favour of a graduated duty?—Yes; but I should like to see the system of bonding carried out also. I have frequently heard here that the duty presses so hard upon the duty day, and it not only presses upon the people who have to pay money, but it presses upon the local markets in a most extraordinary way; the bonding system would prevent that.

2924. *Chairman.*] Have you at all taken into account the additional expense that would be incurred by bonding?—Yes; but I cannot conceive how Mr. Dobson, who gave evidence on this point on the part of the Inland Revenue Office, can put it so high as he does.

2925. Have you made any calculation upon the subject?—Yes. I do not see why it should cost the Government the amount which he mentions. The Committee are aware that the hops are concentrated in a small compass, where they are sold, and in a few ports where they are shipped to London, or else they are sent to London direct to a London house. There would be no difficulty in the factors or hop merchants having a bonded floor under a government lock and key, and their own lock and key, they finding bond in the usual way, so that no fraud should take place, and nothing should be done without the consent and knowledge of the Treasury. I think that the gentleman to whom those houses belong would charge no more for warehousing room in that case than they do now; 1½*d.* per pocket per week would be more than sufficient to cover all their expenses as it does now; and if there were only three clearing days, and the same days for entry, there would be only three days of business in the week, and the cost would amount to a very little money.

2926. Have you calculated what it would cost?—There are many of those gentlemen who do not do anything for what they get, and I do not think there can be much outlay.

2927. Mr. *Brand.*] Would you consider such a graduated duty any part of the bonding system?—I think a graduated duty would be a good thing without the bonding system, but I think if the bonding system were introduced it would be a benefit to the planters.

2928. *Chairman.*] Does not the buyer generally buy hops by sample?—He does.

2929. He can judge of the quality of the hops from his knowledge; but what security is there against false package?—I do not know what false package means.

2930. It was explained to the Committee by a former witness, that false package takes place when hops of different qualities are put in the same bags?—There is a penalty under the Packing Act. I think it is 20*l.* for doing that.

2931. Is it a security against false packages that you can trace where the hops come from?—A great security; first of all there is what we call the Marking Act; the Marking Act identifies the hops as belonging to a certain man; he is obliged to mark his pockets, before the hops are put in, with his name and the name of the parish in which he lives, and where the hops were grown; that at once tells you who is responsible for the fraud.

2932. Would that be the case with foreign hops?—I do not know that there is anything to distinguish where the foreign hops come from, and if you knew where they came from I do not think you could get at the growers.

2933. Supposing a man who had bought a bale of foreign hops found there was a fraud in the package of them, could he trace the fraud back so as to recover what he was entitled to?—No, I do not think that he could, except he could do it in this way; he would not have his remedy against the grower, but at common law he would have a remedy against the man who sold them, and he would say he would have nothing to do with them, or if he had sold them again to any one else he would come upon the man for damages who sold them to him.

2934. Do not you think that the difficulty in tracing back the owner would raise an objection against foreign hops?—No, not at all; it is a mere question

Mr. *P. S. Punnett.*

29 June 1857.

of commerce, as with other sorts of goods; you sell by the sample which you get of the goods, and you examine the bulk with the sample, and if the bulk does not turn out to be in accordance with the sample, I think you nevertheless can say, "I will have nothing to do with it;" but if they are sold again you would go upon the party who defrauded you for a remedy, and make him take the consequences.

2935. Do you think there will be any difference between home grown and foreign hops on that point?—Not at all. As we are upon the Marking Act, I should like to speak generally upon the Marking Act. I think that the Committee have not quite got at the reasons for retaining the Marking Act.

2936. What are the reasons for retaining the Marking Act?—The mark of the parish indicates the district in which the hops are grown; the hops take their quality from the district where they are grown, and I think it would be a very injurious thing to the trade, to those who buy hops, and particularly to the planter who grows them, if there was anything to enable a person to put even the mark of the district upon the pockets containing hops grown elsewhere. Now the Marking Act prevents that at the present moment entirely. With regard to the quality, people say that it is much regulated by the soil. Suppose a man puts his name upon his hops; if he is known in the trade, and it is generally well known what proportion of Grapes or Jones's a man has in his farm, that tells the quality that is grown; and it is of very essential importance to the man who puts the mark on hops that are grown in one part of the county of Sussex as against the other, just as it is in one part of Kent as against the other. It is an advantage to the consumer of hops who has to buy for use; and it is as fair in the one instance as it is in the other. You cannot make Sussex hops as good as Kent hops; it is all very well to talk about it; but I do not believe that people would be so foolish as to give 10*s.* a hundredweight more for an article of the same value that they can get for less elsewhere; common sense brings that down in a short time. Then, with regard to the name of the grower, the management of the hops is very material indeed; one man is known to be a good manager in picking, and drying, and getting the hops into the trade, and so on. Men are known one from another as being some good and some bad managers; and as an effect of management, some planters fairly earn a reputation and character; and if one person were allowed to put another's name, and the name of his parish upon the hops, an error of judgment would be engendered which would damage him, the legitimate grower, when his hops came into the market.

2937. If the mark be such an advantage as you have represented, would not the absence of it be a disadvantage to foreign hops?—Foreign hops are not judged of in the same way; there is nothing to identify the growers in any case, and in some instances there is nothing to identify the district where they come from. But the buyers would judge upon the responsibility of the merchant who sells them. You cannot tell where the foreign hops are brought from; but for any large grower of hops in this country, it is very essential, as regards one growth against another, to know the fact.

2938. Mr. *Locke.*] Is not it an advantage to the buyer to have as much information as he can?—Certainly, and so it is to the seller, when his character is such as will bear investigation. It is a disadvantage to the grower of bad hops and an advantage to the grower of good hops, because if there were no Marking Act other people would avail themselves of a good mark.

2939. *Chairman.*] Is not there a penalty for doing so?—Yes, but it would be difficult to find the man and to apply the remedy; but in the present system you mark the name, and the Exciseman marks the weight, and there is an identification to a certain extent.

2940. Do you say it is an advantage to the grower to have all his hops marked?—No doubt of it.

2941. Is it not the fact that this is not the case with foreign hops, and that you do not so generally know the owner and the merchant?—Yes.

2942. If it is so important to know all about the hops, and whether they are grown by a good manager or not, will not the English buyer prefer English hops, which he can tell all about, to foreign hops, where he could have no such knowledge?—I think, generally speaking, the English merchants act upon that, and that they prefer buying English hops. In buying foreign hops he does not act in the same way; he looks at it as an article of merchandise, and he treats it as such. With us he buys of the producer himself, and then the knowledge

knowledge he obtains is requisite for him; but he cannot help himself with foreign hops, but looks to the merchant.

2943. Would not he prefer to buy hops which he can get information about, rather than those which he cannot get information about?—Of course it is useful. But a man could not for some time know the value of the foreign marks; he knows nothing about them.

2944. And therefore, would he not prefer buying the hops that he does know something about?—Yes, he would.

2945. Mr. *Knight.*] Could you make a calculation of the probable cost to the Government of bonding hops, and of the number of additional persons who would be employed?—No, I do not know. The gentleman who was examined upon the part of the Inland Revenue Office said that 22,000 *l.* would probably be the expense of bonding, but that same gentleman told us that three-fourths of the crop are sold before the end of the year in the season. I should say that in bonding hops you would not require to bond them before the 5th of January, but that then the planter should take his option of either paying the duty or bonding his hops.

2946. Mr. *Brand.*] I suppose you do not put your experience against that of Mr. Dobson?—I do not put my experience against his; but his statement seems erroneous upon the face of it.

2947. Mr. *Knight.*] It was stated that the expense of poling hops in Mid Kent, where large poles are used, is less than in the Weald of Kent and Sussex, where small poles are used; is that the case?—I certainly do not think it is.

2948. Do you think that the contrary is the case?—I do not think it is the case. A great deal depends upon the quality of the poling; they pay a great deal more in East Kent; it depends upon how many poles you have to renew annually. I do not find that depends upon what it costs to renew the poles; the cost of buying is a good deal more; but in the Weald of Kent they are not so well off as in Sussex; water carriage helps them a good deal there.

2949. It has been stated that in ordinary crop years, Sussex hops, without the duty, could not be sold at less than 60 *s.*; do you think that Belgian hops could be introduced for less without the duty?—It is the fact now that the Belgian hops might be introduced, but it cannot go so to any very large extent; they cannot calculate the number that is coming so as to affect the market.

2950. In high-priced years would not the effect be much greater than in this year?—Yes; it is a different thing in a high-priced year. I can tell the Committee a fact as regards the importation of hops in 1854: I remember very well that in 1854 several of the Sussex gentlemen held their hops over at the hop sales of the season; and as the season went on a great many American hops were introduced; they were introduced at high prices first of all, but they were consigned to merchants in the usual way of business, who had made advances upon them, and those were to be sold at any price, as is usual with foreign produce put into the market; and the hops competed with the Sussex hops, and hops went down from 16 *l.* to 10 *l.* and 11 *l.* Mr. Reeves, who told the Committee that he only got 10 *l.* for his hops in 1854, was one of those men; he could have made a larger price for his hops, but by holding his hops over he had to get at last what price he could.

2951. Must not all the hops that come over be sold?—No; I do not think it is the case with those that come from the Continent; they put many in bond.

2952. Is it your opinion that those high-priced years which compensate the hop grower would be reduced by free trade?—Yes; I believe that the facts of the importation have already sufficiently proved that. We say that it will be a very serious thing indeed for the hop growers of England if foreign hops are admitted in high-priced years, because by that means you are cutting off from us our chance of repaying ourselves the money we have lost in the low-priced years.

2953. *Chairman.*] If there had been no excise duty, would not you have lost less in the low-priced year?—We should have lost less by 18 *s.* a cwt.

2954. You would have lost less by 18 *s.* a cwt. upon the crop in an abundant as well as in a low-priced year?—No doubt.

Mr. *P. S. Punnett.*

29 June 1857.

2955. Sir *Edward Dering.*] Have you had any experience in the foreign yearling hops?—Yes; there are foreign yearling hops in bond now.

2956. Can you tell the Committee whether foreign hops will deteriorate in value by keeping as much as English hops or more, and whether there is a perceptible difference between them?—I believe it is a fact pretty well known and admitted in the trade, that the best quality of foreign hops, the Bavarians, for instance, make better yearlings than any English hops. They have more relative value as yearlings than any other hops have.

2957. We have had in evidence that British hops deteriorate about 25 per cent.; can you give the Committee any idea as to what would be the relative depreciation of those foreign hops from year to year?—I was asked, supposing the new hops are of the same value as new hops were for the year 1856, what would be the value of yearlings. I should say that foreign hops would be the same in that respect as English hops; but that for real use in the copper, for brewers' purposes, the Bavarian yearlings are better than any other kind of yearlings that any man can buy.

2958. If English yearlings depreciate 25 per cent. in value for use, what would be the relative depreciation of those Bavarian hops?—I should say it would not be less than 20 per cent. Deterioration and depreciation are two rather different things.

2959. *Chairman.*] Is there any further statement which you wish to make to the Committee?—I wish to call the attention of the Committee to how the acreage duty, of whatever amount per acre it might be, would affect the hops grown in different parts of the county of Kent, particularly the Rochester collection. The Committee are aware that we have last year, by the statistical returns, the numbers of cwts. of hops grown, and the number of acres upon which the hops were grown in each parish in Kent in the Rochester and Canterbury collections; we have it nowhere else. I cannot show the same test in the other two collections, but it appears that if there were a fixed duty per acre it would act in a very unequal way. That can be shown by the few facts I am going to mention, by putting the parishes together where the hops do not vary much in market value, and seeing the different amounts of weight grown per acre, which will make this very plain. Now East Peckham and West Peckham are two parishes which meet each other. In East Peckham they grew 18¼ cwt.; in West Peckham they grew 7⅛ cwt.; comparing Hadlow and East Peckham, in Hadlow they grew 8½ cwt., and in East Peckham 18¼ cwt. In Capel, Tudeley, Pembury, and Tunbridge, which are all parishes adjoining each other, Capel grew 17½ cwt. per acre, Tudeley 15½ cwt., Pembury 12 cwt., and Tonbridge 12 cwt. I am putting the parishes that are contiguous, where the values of the hops are pretty nearly the same. Wateringbury grows 9¼ cwt.; it adjoins Mereworth, where 13 cwt. are grown. Here is Wrotham and Ightham; 10¼ cwt. in Wrotham and 8¾ cwt. in Ightham. Then I go to the Maidstone districts: Loose grew 11 cwt. an acre, Maidstone 8¾ cwt., and the adjoining parish of Boughton would be 10 cwt. I subsequently go to another class of hops. In Boxley they grew 9½, in Thurnham 7⅓ cwt. Then I go into the Weald of Kent, and compare Benenden and Biddenden; Benenden grew 13 and Biddenden 10⅓ cwt. Then I come to my immediate neighbourhood; Leeds grew 8 cwt. an acre, Chart Sutton grew 10 cwt., Broomfield 16 cwt., and Langley 7½ cwt.

2960. Mr. *B. Blakemore.*] What are the extremes?—The greatest extremes are in East and West Peckham, and Hadlow and East Peckham. I thought I should not be doing my duty to those who asked me to come here if I did not state those facts.

Mr. *William Carter*, called in; and Examined.

Mr. *W. Carter.*

2961. Sir *Edward Dering.*] ARE you a Hop Grower?—Yes.

2962. Whereabouts do you reside?—At Boughton-under-Blean.

2963. To what extent are you a grower of hops?—To an extent varying for 20 years from 20 to 100 acres.

2964. Are you in the district of Canterbury?—Yes.

2965. Have you had much experience in growing the best description of Canterbury hops?—Yes; we grow nearly all of that description.

2966. Can

2966. Can you state to the Committee the items of the expense of cultivating the Canterbury hops?—I can give the Committee my own expenses very nearly; my own expenses of cultivation will be about from 36 *l.* to 37 *l.* per acre, up to picking, but I think the expenses in the eastern district would vary from 25 *l.* to 35 *l.*; I should say they average 30 *l.*

2967. Would you consider 30 *l.* a fair average of the cost of production of the district?—Yes.

2968. At what do you estimate the cost of picking, drying, and the duty?—At an average of 50 *s.* a cwt.

2969. Can you give any statement with regard to the items which constitute the cost of 30 *l.*?—I think I can give any that may be required.

2970. *Chairman.*] Can you put in a paper giving the items which make up the 36 *l.* or 37 *l.* you speak of, and also the items as to the expense of picking, drying, and the duty which make up the 50 *s.*?—I think it is a matter that I must go through here, and for this reason: the mode in which some planters have given their evidence shows that there is a great difference in the way in which they have calculated it.

2971. Mr. *B. Blakemore.*] Does it come to the same result?—No.

2972. Sir *Edward Dering.*] Will you give the items of your expense?—The first item that I should give you will be the interest upon 100 *l.*, which is the capital required for planting the hops, building the oast houses, and raising the hops the first and second years, the poling and draining and so on; it requires 100 *l.* capital to begin to plant hops with.

2973. *Chairman.*] Do you farm your own land?—I do; nearly all the plantation is mine; I give this item because I have commenced nearly all my plantations from arable land, and I have had to plant and drain the whole, and I have gone through it, and calculated exactly what it cost me. Upon the 100 *l.* I charge 5 *l.* per annum for interest of money. The next item is rent, 3 *l.* If we have a farm, the general rental of which would be 40 *s.*, out of 100 acres the probability is that ten acres of that land would be planted with hops, and the best of that 40 *s.* land would be selected. I assume that the best ten acres of the land would be worth 3 *l.*, and the worst ten acres 1 *l.*, while the average would be 2 *l.*; therefore I charge 3 *l.* rental where the land is planted with hops.

2974. Have you taken the average rental of the farm?—No, because we always select the best land for planting.

2975. Do you mean to say the rent of the land to the tenant would be 3 *l.* an acre?—No, but if I let the land to him at 40 *s.* I should think the best land was worth 3 *l.* an acre.

2976. If you let him ten acres of hop land at 3 *l.* an acre, would not that rent include all the use of oast houses and the buildings on the land?—Certainly not.

2977. Would there be an additional rent for those?—Certainly; they could not farm the land without oast houses, they are very expensive things. The next item is the tithe rent-charge. I take my own parishes; the ordinary tithe is from 12 *s.* to 16 *s.* per acre; the extraordinary, from 10 *s.* to 12 *s.* per acre; the average, as calculated by me, for both, 25 *s.* per acre; and in other parishes it is more; in some parishes in East Kent they are paying as high as 27 *s.* for the two tithes, the ordinary and the extraordinary; and the poor-rates, the highway-rates, and the church-rates would be about, per acre per year, 10 *s.* The next item is the digging, 1 *l.* 5 *s.* That includes a little extra work afterwards, when the stacks are run down. The next item is the cutting and planting, 6 *s.* The next is putting up the poles, 1 *l.* I must include in the poling of the hops, the expense that we often have in removing a good many in every year where there are weak parts of the ground, and replacing some poles as the wind blows them down; we have to put them up. All those charges would exceed 20 *s.* I forget the items of those charges. The tying at 20 *s.* includes the tying and the ladder-tying, and also the untying and re-tying of those that are obliged to be shifted.

2978. Mr. *Brand.*] Is that work done by taskwork?—The ladder-tying is not, but the other is; the poling is, except the shifting. Secondly, there is the process of rounding, as it is termed, two or three times, and earthing and hoeing during the summer at about 15 *s.* a year; the manure is 8 *l.* The

Mr. *W. Carter.*

29 June 1857.

horse labour for the working of the hops during the summer, the cartage of manure, along with the other works; the delivery of the green hops to the oast, and so on, is about 3 *l.* per acre. Then comes the renewal of from 500 to 600 poles, annually; that is to make up for those that wear out. Supposing that an acre of poles contains 3,000, I calculate that that would require from 500 to 600 annually to make them good; that would be allowing that the poles would last from five to six years; that comes to 7 *l.*

2979. *Chairman.*] How many hills do you reckon to an acre?—One thousand, and three poles to a hill.

2980. What is the size of the poles?—They vary in different grounds from 14 to 16 feet; those are the usual poles. We may have them wear down to less, but we never buy them less.

2981. Do you make your estimate for 16 feet poles?—Yes, the 16 feet poles would cost this; but I am in a rather expensive district; I am a great distance from the woods. I have derived what I state from my accounts, in order that there should be no question about it. Then there is the stripping, stacking, and sorting, and moving the old poles, for which I have put 10 *s.*, and I have also added the pulling down the poles for picking, and the getting ready for gathering, because I have not charged that in the picking, drying, and the duty; that would come to 15 *s.* more. Then there are two or three items here that I find they have cost me, but they are not noticed by other people. There is superintendence, 10 *s.* an acre; it is a matter that requires a great deal of labour, and you cannot attend to it yourself, and you are obliged to have overseers to do that work; it is a moderate charge. I have made a charge of 5 *s.* an acre for sulphur; I find that is about the average. We get mildew, and we are obliged to do these things; and there is the same for lime.

2982. Are those both used for the same purpose?—Not altogether; sometimes after the wet comes we have wet, cold land, that is drained; and if we spread some lime on the surface I find it improves it.

2983. Sir *Edward Dering.*] Do you apply the sulphur to the bines?—Yes. There is another item of 10 *s.* per acre in the greater part of my plantation, which is not included. We buy a good many poles, and fix them, to keep the wind from the hops; that is a regular part of the plantation, and costs me 10 *s.* per acre. Then there are sundry allowances occurring annually, which I put down at 4 *s.*; they are often more. Then there is another item, of interest to be charged upon those expenses of cultivation and picking. I find the money up to the time I sell the hops, with the exception of the duty; that will be 1 *l.* 15 *s.* for the charge per acre for interest upon the 35 *l.*; that is the interest upon the current capital employed, and that brings my charge to 36 *l.* 15 *s.* per acre. This is my own calculation; but I think 30 *l.* is a fair average for the eastern part of the Canterbury collection.

2984. *Chairman.*] In what respect is your account more than the general average?—I think I am a more expensive cultivator than some of my neighbours.

2985. Do you use more manure?—I think generally I do.

2986. Sir *Edward Dering.*] Are not you the first witness we have had before this Committee who grows this description of hop?—I am the first East Kent man.

2987. Do you grow the Canterbury grape?—I grow the Canterbury white bine, and the Goldings; I grow a few of the other sorts, to test them with the other hops; I grow nine-tenths of the best sort, and one-tenth or a little less of the worst sort.

2988. What is the rate of wages in your district?—The rate of wages is 2 *s.* 4 *d.* a day; but there is none of this work done by the day; a man will not go into a hop-ground where his earning are 2 *s.* 4 *d.*, he generally gets 2 *s.* 6 *d.* or 2 *s.* 8 *d.*, or else we cannot get them; I have been glad to do so, and have the best workmen.

2989. Mr. *Brand.*] Is that the ordinary rate of wages?—Yes.

2990. Is there any large town that makes the rate of wages high?—Not any. It is not a manufacturing district.

2991. *Chairman.*] How far is Canterbury from you?—From some parts of my land it is five miles, and from the rest, 10.

2992. Do you get your manure from them?—We use a great deal of artificial manure; but a great deal is made from the fatting of animals.

2993. What kind of soil have you where you grow the best kind of hops?—The land that grows the best quality is about three feet of a rather lightish texture, and about from three to four feet of chalk.

2994. Have you a porous chalk subsoil?—Yes. I do not mean to say that my land is all of that sort; but I grow the best hops upon that description of land.

2995. Is not your land, to a great extent, drained?—My land, I should think, is three-fourths of it drained.

2996. To what depth is it drained?—From three feet to six feet.

2997. Is that land, which you talk of as being a loam of three feet deep above chalk, drained?—That is the only bit that I have not drained; but that is the best ground for hops.

2998. Is there much of that land in the districts around Canterbury?—Yes, but it varies much. There is a great deal of sand, and a great deal of gravel.

2999. Sir *Edward Dering.*] You stated that the expenses of drying, picking, and duty are 50 *s.* per hundredweight; will you tell the Committee how you make out that amount?—It varies extremely; but I must give you, as near as I can, the average. I think picking, upon the average, is 17 *s.* a hundredweight; and drying, and labour, and fuel, and those things, I have put at 8 *s.* per hundredweight; the duty we pay is 18 *s.*, or a little over, and the commission, cartage, freight, insurance, and other matters, would average about 7 *s.* a hundredweight, including stowage, and so on; and the repairs of the oast house (I have only charged for erecting in the original cost), is charged in the 8 *s.* per hundredweight for drying the hops. Perhaps I ought to explain, that our hops often grow so small, that the cost is more increased than it is in any other district.

3000. Mr. *B. Blakemore.*] Do not you include the repairs of the oast house in the interest on the 100 *l.*?—No.

3001. *Chairman.*] What fuel do you use for drying hops?—We use charcoal, coke, and the Welsh coal; a mixture of them.

3002. Sir *Edward Dering.*] What is your opinion as to the bearing of the Excise duty on East Kent, as compared with Sussex?—I think, from the calculations I have made, that it was about fair upon the two districts. What caused me to make these calculations was, the evident feeling with which Mr. Reeve gave his evidence, that Sussex was unfairly dealt by in having the same duty charged per cwt. as East Kent; therefore I took the trouble to make the calculation to bring it out as near as I have done. First, I must say that the districts of the Canterbury collection are not all East Kent; they include something like 1,200 acres of what they call bastard East Kent hops; that district goes down by Romney Marsh, and is quite a different description of land. The average is 12 cwt. an acre. I take last year for this reason, that I think I heard from a Sussex gentleman who has given evidence, that the period when they are most injured by the duty is that after a succession of large crops; therefore I take 1856 to carry out the argument. In the year 1856, East Kent produced 8 ½ cwt. per acre. Bastard East Kent produced 12 cwt. per acre, and Sussex 11 ½ cwt. per acre, showing a difference of three cwt. an acre of the crops upon these data. The East Kent hops, which produce 8 ½ cwt. per acre, sell at 90 *s.* a cwt., which would be 38 *l.* 5 *s.*; the expense of cultivation is 30 *l.*, and the picking and duty would leave a cost of 51 *l.* 5 *s.*, making the loss upon the East Kent of 13 *l.* Then I take Sussex at 11½ cwt. per acre, and I put them at 70 *s.*, which will make 40 *l.* 5 *s.* I based this calculation upon the evidence given here of what would be a fair proportion to charge between Sussex and East Kent, I think it was Mr. Smith who stated that; that would be 22 *l.* for the expenses of cultivation, and for 11½ cwt.; the picking, drying, and duty at 40 *s.* would be 23 *l.*, which would bring it to 45 *l.* per acre, showing the loss, in Sussex, at 4 *l.* 15 *s.* an acre against 13 *l.* in East Kent.

3003. Mr. *Brand.*] Did you sell your hops at 90 *s.* a cwt. in 1856?—I sold my hops upon the average, I think, at 87 *s.* There is a great mistake as to the East Kent hops, which are grown in the good districts. I know what my averages are. Last year a great portion of the East Kent hops were sold at 4 *l.* a a cwt.

Mr. *W. Carter.*

29 June 1857.

3004. *Chairman.*] Do not you grow the best kind of hops?—Nine-tenths of the hops I grow are of the best class, and rather more.

3005. Did you grow 8½ cwt. last year?—No, I grew 16.

3006. Was not that an unusually large crop?—The two largest crops, I think, that I have known since I have been a planter were last year and the year before.

3007. Has the produce per acre in East Kent upon the average increased of late years?—I think it has in certain districts; there has been more capital spent, but I do not know that it has increased generally. I am not prepared to answer that question. I do not like to say anything upon supposition, as I am not prepared to say that it has or it has not.

3008. It appears that in your own case you have largely increased your growth?—Yes.

3009. Is not 16 cwt. an acre the largest crop you ever knew?—No; I think I grew 17 the year before; they are the two largest crops I ever grew.

3010. Can you tell the Committee what your average is for the last 10 years?—I am afraid I cannot give correctly the average of more than four years here, and that would be no guide, because there were one or two very short crops in that time to bear out this matter, which is the point of importance in which there is any difference between Sussex and Kent, I think there is not any difference between the counties. I have based this calculation upon the prices of 90 *s.* and 70 *s.* I had some conversation with some parties in the trade, and I asked them what was the fair average price of East Kent hops last year, and they took an average out, and that was 88 *s.* I then made a calculation upon their grounds, and I found East Kent to be losing 13 guineas an acre. I then took Sussex, according to their statement, at an average of 63 *s.* a cwt., and that shows Sussex to lose 8 *l.* 15 *s.* 6 *d.*, so that by their calculation, upon this particular point, which in Sussex was so much discussed, they are better off than we are, and I thoroughly believe it.

3011. Was there much distress among the hop growers in the Canterbury district that year?—I never heard of any; they are always ready to pay their duty when they are asked for it. For these 10 or 20 years I do not think the East Kent men have thought of asking for a postponement of the duty.

3012. Are they always ready with their money before the duty day?—I think so. The difference between us and Sussex is, that in a great part of East Kent hops are not cultivated in large plantations. In farms of 200 acres of land there are 10 or 15 acres of hops, and the consequence has been, that the cost of those hops does not amount to so much money as to prevent their paying the duty as it becomes due. They go to the other parts of their farm. Wheat pays well, and so does wool, and that is the reason they do not make complaints as the Sussex growers do.

3013. In your district you have not sought for a postponement of the duty?—They have not lately, to my own knowledge.

3014. Do you know any occasion on which they have done so?—I do not know; I think they have, but I could not fix the date.

3015. Sir *Edward Dering.*] Do you think it an advantage, or a disadvantage, to postpone the duty?—I think it is an injury. In the first place, it is perfectly child's play. It is often the case that a planter goes to his banker or factor and gets the money. I think they want a postponement when money is dear, more than when the planter is distressed. If money were not dear, they would go and get it from their banker or factor.

3016. *Chairman.*] Do you think the planters met the duty without any great difficulty last year?—I think they did so without exception.

3017. Do you think that that is the case in past years?—I think it is their intention to pay, if they were not looking forward to being let off; and if they had not the money they would borrow it.

3018. Mr. *Brand.*] You have given us the result of growing hops in East Kent and Sussex in the year 1856; can you give us the same calculation for 1855?—I cannot. I based it upon 1856. I had no other object than to meet what I heard in evidence. It was given in evidence before the Committee that it was the repetition of two large crops which put them in the bad position they were in, and therefore I took that year as the basis of my calculation; and another reason why I could not do so is, that it is only this year that the average of East Kent has been separated from the average of bastard East Kent, and

and the average of bastard East Kent is as high as 12 cwt.; it is more than Sussex itself.

3019. *Chairman.*] How small a crop have you ever had in any year?—I should rather think that 1854 was the smallest crop I ever grew. I grew between 3 and 4 cwt. an acre on the average; but, however, that must not be taken as any criterion of the district, because I was farming at a great expense, without any reference to cost at all.

3020. Sir *Edward Dering.*] What is your opinion with regard to an acreage duty?—It would suit me very well; but when I first heard of the proposition I thought it was a ridiculous suggestion, for these reasons: first, because the effect would be, that we should pay half the duty that we had paid previously; and next, because I knew that one party in my own neighbourhood had hop plantations that, from his good management, would grow his 10 cwt. an acre, and he would sell it for 6 *l.*, that would be 60 *l.*; whereas, the man over the hedge, who was on quite a different sort of land, would grow 5 cwt. an acre, and sell it for 4 *l.*, and yet would be called upon to pay the same acreage duty. I thought it was unfair.

3021. Mr. *Brand.*] Are you speaking of an acreage duty of 3 *l.*?—Yes.

3022. Mr. *B. Blakemore.*] I think you stated that you had grown in 1856 as much as 16 cwt. an acre?—Yes.

3023. Therefore you paid something like 14 *l.* 8 *s.* an acre?—Yes.

3024. I think you stated the average of East Kent to have been 8 ½ cwt. per acre; so that the duty at 18 *s.* would be 7 *l.* 13 *s.* an acre?—Yes.

3025. And that upon the Sussex average of 11 ½ cwt. the duty of 18 *s.* a cwt. would be 10 *l.* 7 *s.*; there is a considerable difference between the average of East Kent and Sussex in the duty?—Yes.

3026. Are not your crops nearly double the average crop of East Kent?—Yes.

3027. To what do you attribute that; is it from good farming or favourable situation?—I attribute it to the outlay of capital; hops are grown by capital more than by anything else. It is nearly 10 *l.* an acre over the average of East Kent, I believe.

3028. Can you afford to pay 36 *l.* 15 *s.* for excess of cultivation over the average, and to pay 14 *l.* 8 *s.*, and do you then get a fair profit by it?—No; I did not say that.

3029. May I ask if you got a profit?—The last year will show a loss by my own transactions on the 16 cwt. an acre. The average price was 87 *s.* a cwt.; that comes to 69 *l.* 12 *s.* My object in giving evidence here was with this view; we want the thing finally settled. I have been greatly injured by having a doubt upon it, therefore I am ready to state my own business, or anything else. The 16 cwt. at 87 *s.* is 69 *l.* 12 *s.*; the cost of cultivation is 36 *l.* 15 *s.*; the picking, the drying, and the duty upon 16 cwt. is 40 *l.*; and I lost 7 *l.* 3 *s.* per acre upon my hop cultivation last year.

3030. Is that generally the case in the long run?—No; I have made money upon it.

3031. Do you consider that you have made as much by hops as by your wheat crops, or your other crops, on the average of years?—A great deal more.

3032. In spite of the duty?—Yes.

3033. Is the duty a vexatious duty in the collection?—It is not at all vexatious in the collection.

3034. Is it more vexatious than the house duty or the assessed taxes?—I prefer having no duty; but I have no complaint against the collection of it; we find that the Excise officer constantly in the oast houses and upon the premises, is a protection to our property; I should prefer having it than otherwise.

3035. Sir *Edward Dering.*] What do you think would be the effect, supposing the Excise and Customs duty were both abolished?—I should prefer, with all my brother planters, that if it is to remain it should be at once finally settled; but if it should be taken off, that it should be reduced gradually over a series of years, the Excise duty being taken off as well as the Customs duty; if we got an open malt trade and an open beer trade, every planter would hold up both his hands to have them removed

3036. To say nothing about the malt duty, referring only to the Customs and Excise duty, would you prefer them to remain as they are, or to have an entire free trade?—I would rather remain as we are. I know the action of the

Mr. *W. Carter.*

29 June 1857.

one, and I do not know the action of the other; I can only guess what the consequence would be.

3037. Do you think it would admit a great quantity of foreign hops to compete with your hops?—I have no doubt that it would. I have been told that they would compete with my hops more than with any other; but I think that if we could get an increased consumption I should be ready to compete with the foreigner; but with the restricted malt trade and the licensing system it is impossible to increase the consumption.

3038. *Chairman.*] Do you think that the foreign hops would compete more with your own than with other hops?—I speak from hearsay in the trade, but I cannot say from my own knowledge.

3039. Supposing that there were no fear from foreign competition at all, would you wish to have the Excise duty?—No.

3040. Do you consider that the Excise duty is a burden?—I recommend the continuance of the two duties.

3041. Sir *Edward Dering.*] Do you consider that the Excise duty is the price that you pay for the Customs duty; that is to say, that you are content to pay the Excise duty upon condition of there being a Customs duty?—Exactly.

3042. Mr. *Beach.*] Is it not a great insurance against foreign competition?—You may call it what names you please; the hop trade has been upon an artificial foundation for many years, and the difficulty is to slide from one system to the other without a certain injury.

3043. Mr. *Brand.*] Do you know that much injury arose from the lowering of the Customs duty in 1846?—They were not good years just then, but I do not think there was much difficulty. There was I think some application made from our district in that year; there was some distress.

3044. Mr. *B. Blakemore.*] Taking the system of cultivation generally adopted, do you think that the English grower could successfully compete with the foreign grower, or that he would be damaged by taking off the Customs duty?—I think that would depend rather upon whether there was an increased consumption.

3045. Do you think there would be so many foreign hops, that many hop lands would be forced out of cultivation by foreign competition?—I should doubt it, for hop growing is a speculation. There are a great many men, although they lose money by hops, who until they are actually forced to do it will not grub. When they grub it is not the poor man that does it; he is upheld by the factors.

3046. Would he be obliged to have recourse to high farming?—That would be convenient, but he has not the capital.

3047. *Chairman.*] Is hop growing a business for a man of capital?—I think so.

3048. Mr. *B. Blakemore.*] Do you think that a man having a hop garden requires more capital per acre than one who has not a hop garden?—Yes, I think that a man should always be able to lose the value of his crop of hops for two years.

3049. *Chairman.*] Should not he be able to lose, not only the value of his crops, but the duty into the bargain?—As it stands now, it would be so.

3050. Mr. *Beresford Hope.*] Is not the hop trade kept up by the growth of underwood, the two depending upon each other?—I think not in my district.

3051. Is the underwood large in your district?—We have a considerable amount.

3052. *Chairman.*] Do you think that the effect of the Excise duty is to restrict the cultivation of hops in England?—I think not, in East Kent; I do not answer for Sussex and those districts, because I do not know them.

3053. Do you consider that in East Kent all the land that can fairly be considered hop land is under cultivation?—Yes; I think there is more planted than there ought to be.

3054. Mr. *Beresford Hope.*] How long ought a hop garden to last?—My system is to plant one-tenth and to grub one-tenth every year.

3055. We have had evidence that there are hop gardens near Maidstone that have lasted 100 years; is that the case in your district?—I have had some that have lasted a long time.

3056. Yours is the system of changing?—Generally. We have some lands that

that are peculiarly fitted for hops, and we have lands that have lasted 50 years.

3057. *Chairman.*] Do you think if there were no Excise duty upon hops, there would be many small farmers who would plant one acre or half an acre of hops?—I hardly know what to say; because, if a man does that, he must build an oast house. In the parish in which I live we have a great many small farmers now who plant a few acres, and do nothing else.

3058. How many acres are there in your parish under hops?—In Boughton-under-Blean, I should think, 300 acres.

3059. Mr. *Beresford Hope.*] Are the holdings large or small near you?—They vary from 10 up to 500 acres.

3060. Are there any under 60?—Yes, many.

3061. Have they hops on them?—Yes, in this particular parish they have.

3062. Are they general in East Kent?—No.

3063. Mr. *B. Blakemore.*] Have you been at all in foreign hop countries?—Not so as to be able to give an opinion upon them.

3064. *Chairman.*] How could you account for the greater distress that has existed in Sussex of later years than there has been in East Kent?—I think, generally speaking (at least this is the opinion I have formed), that many of those men are growing hops to a large extent in proportion to the rest of their business, and, of course, when a depression comes, they feel it more, because they have not other things to fly to. There is a matter I may explain with regard to East Kent: they have there a smaller proportion of land cultivated in hops, and when the crops are short he pays the duty from the rest of his crop, and he is not much pressed in consequence.

3065. Mr. *Locke.*] Do you think your land is better than Sussex land?—No; I think the east part of Sussex is finer land than we have for hops.

3066. Mr. *Brand.*] Are you speaking of the districts immediately about Rye?—I am.

3067. *Chairman.*] Will you explain how it is that, as you have said your hop land lets for 3 *l.* an acre, while in Sussex the highest is 2 *l.*?—I think that in Sussex the principle of growing hops is different. They have been favoured by having a large space of unbroken marsh land, which for a series of years will grow hops without assistance; and, taking advantage of their position, they have grown a great quantity of hops upon them. That is my impression; but I think I am not qualified to give a proper opinion upon it. They have another custom there which we should be very glad to follow, if we could, but we have not got land sufficient. They lay down their land in grass, and then break it up and plant it with hops again, and replant it in the course of time. By this means they grow large crops without much expenditure.

3068. In your district do the hop gardens, when once planted, last a great number of years?—Many of them do.

3069. Sir *Edward Dering.*] Do you consider that the obligation you are under to mark the hops is an advantage to you?—I think it is an advantage to every one; more to the consumer than any one else.

3070. As affording him facility for judging as to the quality which he buys?—A man may sell hops well known to the trade as being a pretty good mark, and the bag might be emptied, and be refilled with foreigners, and go into the country, and no one knows anything about it whatever. Possibly this might occur; supposing, when my sacks were empty (the brewers often sell these pockets for flooring), some one might buy some of my pockets, and refill them with foreign hops, and no one would know anything about it.

3071. Mr. *Brand.*] Would not that be a fraud?—Yes; but if they went into the country I should know nothing of it. Those hops are sent into the manufacturing districts, and retailed by the pound.

3072. *Chairman.*] Cannot a fraud of that kind take place now?—I think it can, but not so easily; because you would be able to identify your cloth and the Excise marks. But I do not know that it cannot take place now. At any rate, I feel satisfied that the marking is a great protection to the brewers, and to all parties.

3073. Do you think that a great proportion of the brewers buy more by mark than by sample?—They buy by sample and by quality; but still, if they know that a man is a good manager of hops, and can give the brewer general

Mr. W. Carter.

29 June 1857.

satisfaction, they will prefer his hops. Samples alone will not satisfy the brewers.

2074. Do you think that if they buy by samples the mark influences them in judging?—I think so. It would not influence the large brewers that have large concerns; but it influences the small men. I have known some brewers who did not use the best quality of hops, who have used a certain man's hops, and they will use them again.

3075. *Chairman.*] Supposing that hops in a certain locality deteriorate from over-manuring and over-production, or any other circumstance, would not the mark still help to carry them off in the market?—I do not think it would, because we have cases in my own parish where two grounds adjoin; one may be a good manager, and the other a bad manager; and there may be one-third difference in the sale price of the respective hops.

3076. Do you think the mark is of considerable value?—I think the mark is a considerable protection to both parties, for the buyer buys by sample, and his judgment is corroborated afterwards by finding that he has been buying of a good manager.

3077. Mr. *B. Blakemore.*] As to the items of expenditure of 1856, was this your ordinary annual expenditure, or was it an unusally large year?—It was large; inasmuch as the crop was large, the picking, and drying, and duty was large.

3078. If you failed to get interest upon your capital and to get your rent, do you go on next year at the same rate of expensive cultivation?—It would depend upon circumstances; if we had a large crop, such as I had, of 17 cwt. of hops per acre, the land would require an immense deal of assi stnce to bring it up to the mark in the following year.

3079. Mr. *Beach.*] Was not the reason that you lost money in 1856, the great crop of the preceding year?—From the over-production and low prices.

Mr. *John Kenward,* called in; and Examined.

r. J. Kenward.

3080. *Chairman.*] YOU are a Hop Grower, I believe, in Sussex?—Yes.

3081. In what part of Sussex?—Uckfield and Little Horstead.

3082. Is that district in the Weald of Sussex?—Yes.

3083. What sort of land do you grow hops upon?—Rather stiff land.

3084. What do you set the expense of cultivation at per acre?—I should judge that a good farmer's expenses are about 25 *l.*, and a bad farmer's about 21 *l.* or 22 *l.* There is a considerable difference in expense between the good farms and the bad.

3085. That is, without taking in the expenses of picking and drying?—Yes.

3086. What do you put them at per hundredweight, including the duty?—About 35 *s.*

3087. Do those expenses vary much from year to year?—No; they do not vary much per hundredweight.

3088. Does not the picking cost more n some years than in others?—It does a little. It generally costs more in a hort crop year than in a great crop year.

3089. Why is that?—Because in a short crop year they cannot pick so many per day; the crop is not so good.

3090. In an abundant crop year, is not there a greater demand for labour?—Yes.

3091. Have not you to pay more sometimes in those years for labour?—Not a great deal.

3092. What is the ordinary price of hops that are grown in the Weald of Sussex, in your neighbourhood, in different years?—I should think the prices this year up to Christmas, will average about 64 *s.* the cwt.

3093. Do you consider this a low price year?—Yes, last year they were about 3 *l.* 18 *s.*, the year before about 15 *l.* or 15 *l.* 10 *s.* In 1853 they were about 9 *l.* 10 *s.*

3094. What do you consider the price at which hops can be grown with a profit?—I think we could grow them at 4 *l.* or 4 *l.* 4 *s.* per hundredweight.

3095. Do you think that when you do not get 4 *l.* 4 *s.*, the hops do not pay?—If we grew a very heavy crop, it would pay at a little less; for a poor crop we should want more.

3096. Do

3096. Do you think that hop growing generally in the Weald of Sussex is a successful business?—It does not pay so well as it ought to do.

3097. Do you think it pays as well as other crops?—I do not know, it pays me as well.

3098. Do you farm better than some people in your neighbourhood?—I do not know; I have been rather a lucky grower.

3099. Are you a man of more capital than some of the other farmers?—My capital is not very great.

3100. Is it a business that suits a farmer who has not got money to lay out upon it?—A great many people grow hops who ought not to have them; they are not able to look after them, and they cannot cultivate them.

3101. They have not money enough?—No; they are short of money.

3102. Do you think that they would be in a better case if they had no tax upon them?—I think that I should be a great deal worse off.

3103. Do you like being taxed?—I should like very well to have the duty off, if you kept the Customs duty on, but if it were all going to be thrown open I would rather remain as we are.

3104. Would you like to have the Excise duty off if the Customs duty were left on?—I think if the other duty comes off the Customs duty comes off, and therefore I would rather keep that duty on.

3105. You would rather pay the Excise duty than have free trade?—Yes.

3106. Are not the hops grown in the Weald of Sussex a cheaper sort of hop?—They are very good hops: they are not equal to Kent Golding's.

3107. What kind of hops are they?—We grow Colegate's, Grapes, Jones's, and Canterbury's.

3108. Do you think the foreigner could undersell your hops?—No, I do not think they could undersell us, but the Bavarian hops are so good they hurt our sale; they get a great price for theirs, and they hurt our sale; the Bavarian hops realize a great deal of money.

3109. Can you undersell them?—I do not know that we can undersell them, for they grow them so remarkably good that they are sadly in our way.

3110. Are they much better hops than yours?—Yes.

3111. Mr. *B. Blakemore.*] Are they better hops than the Sussex or the Kent?—Yes.

3112. Do the best Bavarians supersede all the hops in the world?—Yes.

3113. *Chairman.*] Do you think they are the best hops, and make the best beer?—Yes, I think they are. I am speaking of the best Bavarians.

3114. Do the brewers always buy dear hops?—No, they do not.

3115. Do not you think that, though they might buy Bavarian hops for the more expensive kind of beer, they would buy your hops for the cheaper kinds?—Yes, I think they would.

3116. Do you think the Bavarian hops will not do you much harm?—They would do us harm. They did me a great deal of harm in 1854.

3117. What did Bavarian hops sell for in 1854?—I do not know what they sold for in 1854; but when I began to sell my hops, I sold them for 20 *l.* a hundredweight; but when the Government took off the duty to 1 *l.* 5 *s.*, and made it level with ours, I was obliged to finish at 11 *l.* a hundredweight.

3118. We are told that no more foreign hops came in that year than would have come in if the duty had been kept on; is that your opinion?—I think, if they had been kept on, we should have had as many hops in that year; they would have come in and paid 2 *l.* 5 *s.* duty. That is my opinion.

3119. Mr. *B. Blakemore.*] Is that because there was a short crop?—Because there was a short crop.

3120. *Chairman.*] Do you think that reducing the Customs duty on a short-crop year does you any harm?—Yes; because that is the time we expect a great price, and we do not get it if they are sent in.

3121. Did the reducing the duty on foreign hops do you harm in 1854?—Yes; it did us harm, because, reducing the duty enabled them to send in more, and it made such a noise that they reduced our price.

3122. Did they send more hops from abroad because the duty was reduced?—I dare say they would have sent some foreign hops; if there had been 2 *l.* 5 *s.* duty, they might not have sent in so many; I do not know how that might be.

3123. Should you think that in a scarce year it is of no consequence whether the

Mr. *J. Kenward.*

29 June 1857.

the duty upon foreign hops is 1 *l.* or 2 *l.* 5 *s.*, because they probably would come in under any circumstances?—It was a peculiarly scarce year in 1854; often, when we have a short crop we have a good surplus in hand, and we should get a good price upon our yearling hops, but if you lower the Customs duty we cannot get that.

3124. Do you think that the lowering of the Customs duty did you harm?—It did us harm; I am not able to say that they would not have sent in as many as they did; perhaps they would not have sent in as many; there is no doubt they would have sent in a good many, because the high price would enable them to do so in 1854.

3125. Why do you suppose the duty on foreign hops was reduced?—Because I think there was a great deal of bad management upon the part of the Government.

3126. Do you think that they are likely to manage better for the future?—I am rather shy of them, for this reason: they took it off in a year when I think they ought not to have done so, and having done so once, if we were to get a short crop, I should be fearful they would take it off again.

3127. Does not the Excise duty inflict a loss upon you in some years?—Yes, when we get heavy crops.

3128. But you would rather pay the Excise duty, for the sake of having the Customs duty?—Yes.

3129. Do not you think that if the Government took to reducing the Customs duty, whenever there is a small year, you would be better off with the Excise duty off?—I should think the Government would not commit themselves so another year.

3130. But you have told us that you do not trust them much?—I should think they would not do so; we all make mistakes sometimes.

3131. Do you trust to them enough to be willing to go on paying the Excise duty?—Yes.

3132. You have that amount of confidence in them that they will not take off the Customs duty again, that you are willing to pay the Excise duty?—I should not think they would do it any more, but I cannot tell.

3133. If you have a large crop and low prices, do not you pay the duty out of your own pocket?—That is a question I cannot answer.

3134. Do not you lose the amount of the duty in some years?—I do not know that we lose much.

3135. Have not you said that hop growing generally was not a good business?—It is not so good as it should be.

3136. Do you mean that sometimes people lose by it?—Yes; sometimes no doubt they lose.

3137. Do not they lose the amount of the duty in some years?—I think perhaps they may.

3138. You tell us that the Weald of Sussex hops would pay at four guineas?—Yes.

3139. In those years, when you sell them at 3 *l.* 4 *s.*, do not you lose the amount of the duty?—It is not often that we sell as low as 3 *l.* 4 *s.*; that is a low average. This is a poor growing year with us. With the crop heavy this year, and the crop heavy last year, those two years were bad years.

3140. Do you, when you sell at 3 *l.* 4 *s.*, think that you are then losing the amount of the duty upon every hundredweight of hops?—I do not think we lose the amount of the duty; because in those years we grow a good many.

3141. Do they pay at less than four guineas?—There is not much that pays at 3 *l.* 4 *s.*

3142. Would not you prefer them without Excise duty this year?—As regards myself, if I sell all my hops at 3 *l.* 4 *s.* I do not think I shall lose anything this year, but I am rather a large average grower.

3143. Do you think that other people might?—I think they might.

3144. At what price can foreign hops come in?—I do not know.

3145. You do not know whether they could undersell you when your hops are at 3 *l.* 4 *s.*?—The Bavarians cannot undersell us.

3146. Can any other hops undersell you?—I do not know but what the American hops can; they are very poor hops.

3147. Are they as good as yours?—They are not as good as ours, but they do

do not hurt us much when they are at 3 *l.* and 4 *l.* a cwt.; they hurt us most when we get half a crop, and we expect a good price.

3148. Do they come in in scarce years?—Yes. They cannot hurt us much at 3 *l.* or 4 *l.* a cwt.; we cannot help ourselves much at that price; but when we get a short crop, and expect to pay to make up for the good crop years, in comes the foreigner, and he is in the way.

3149. Protection does not do you much good?—I like protection, because I think if you strike it off, you will strike off all our profits at once, and it will be no good to go on.

3150. But still you say that in scarce years, as it is, the foreigner does very much interfere with you?—They hurt us then very much; that is the time at which they hurt us most.

3151. They cannot compete with you in the years when you have a large crop?—No.

3152. Do you know whether there is much betting going on on the subject of the hop duty?—There is betting going on.

3153. Has it come to your knowledge that persons have lost heavily by betting?—Yes, they have.

3154. Mr. *Brand.*] What class of persons is it that make those bets?—Some of all sorts bet.

3155. Do the planters bet?—Yes, they do; and so do the gentlemen who sit in this room; there are some of all sorts who bet.

3156. Is there much money that changes hands in this betting?—I think there is.

3157. Can you state at all what sum?—No, I cannot.

3158. Does 100,000 *l.* change hands in the course of the year?—I should think there is 100,000 *l.* which changes hands in all the hop-betting districts.

3159. Do you think 200,000 *l.* changes hands?—I do not know.

3160. What is the largest sum that you ever heard that any one man made in betting upon the hop duty?—I never knew a man make 40,000 *l.*

3161. Have you known a man make 35,000 *l.*?—I think I have, in one instance, and only one.

3162. Are many of the planters injured or ruined by this betting?—No, I do not think the planters bet much; I think the bets of the planters are confined to a new hat, or something of that kind.

3163. Do the factors and merchants bet?—Yes, pretty much; all classes bet.

3164. Mr. *B. Blakemore.*] Including Members of Parliament?—Including Members of Parliament.

3165. *Chairman.*] If there were no duty would it put an end to the betting?—I think those that are disposed to bet would go to horse-racing, which, I think, is much worse than betting upon the hop duty.

3166. Why is that worse?—Because when they bet upon the hop duty I think it helps the brewers, the consumers, and the merchants, and different people, to know how things are going on through the summer.

3167. It is a good thing for the consumers and brewers; is it a good thing for the planters?—We like to know what is going on; by the estimate of the duty we can learn what is going on in different counties.

3168. Is that estimate near enough to the mark to be of any value?—I think the judgment is pretty good upon it, as it goes on according to appearance, and at last, whatever the duty is estimated at, it comes out very close to the estimation.

3169. What is the betting about the duty at the present moment?—About 110,000 *l.* to 120,000 *l.*

3170. What was it put at this time last year?—A little later than this it was put at from 160,000 to 200,000 *l.*

3171. What was the duty?—About 260,000 *l.* at least.

3172. Then they were not very near the mark?—No; but you cannot estimate the duty before the day. You must estimate that as you go along, according to the progress of the crop.

3173. Then the indication afforded by the betting cannot be of very great value, if it is so far out?—Only for the present time.

3174. Mr. *Brand.*] Is it not the fact, that you cannot form any opinion of the crop till within three weeks of its being picked?—You may form an opinion of it, but hops are things which vary very much.

Mr. *J. Kenward.*

29 June 1857.

3175. Mr. *B. Blakemore.*] How long have you been a hop grower?—Twenty-five years.

3176. In the long run, do you think the Excise duty has done any harm?—No, I think it has not.

3177. Do you think a repeal of the Customs duty would do you any harm?—I think it would.

3178. I suppose your opinion is, that the Government would rather have both duties?—I can tell the Committee how they could satisfy both parties; my opinion is that if the Customs duty remains, and you lower our duty to 1 *d.* a pound, if you take off the war duty and five per cent., and put it at 1 *d.* a lb., I firmly believe that 99 out of 100 of the planters would be satisfied.

3179. Mr. *Brand.*] Do you think that the Chancellor of the Exchequer would be satisfied to lose half the revenue derived from hops?—He would not lose half, because he would have the Customs duty as it is now, and he would have rather more than a half from us; I think that he would be satisfied, because he is pestered pretty nearly to death now by the planters.

3180. Mr. *B. Blakemore.*] Do you think there would be a greater growth of hops in this country if that were done?—I cannot tell; because I think the growth is too large now; one year with another, I think we grow plenty.

3181. Do you think we send out of the country as much as we bring in, one year with another?—I do not know; I think there is now and then a year in which we may still need foreign hops; if the duty were reduced to 1 *d.* a pound, the Chancellor of the Exchequer would not lose a great deal.

Jovis, 2° die Julii, 1857.

MEMBERS PRESENT.

Mr. Bass.	Mr. Beresford Hope.
Mr. Beach.	Mr. Knight.
Mr. Blakemore.	Mr. John Locke.
Mr. Brand.	Mr. Wykeham Martin.
Sir Edward Dering.	Sir John Shelley.
Mr. Dodson.	

JOHN GEORGE DODSON, Esq., IN THE CHAIR.

Mr. *George Hammond,* called in; and Examined.

Mr. *G. Hammond.*

2 July 1857.

3182. *Chairman.*] ARE you a Hop Grower?—I am.

3183. How many years have you been a hop grower?—I have been a hop grower for 35 years.

3184. Where have you grown hops?—In the Weald of Kent, till within the last five years.

3185. In what part in the Weald of Kent?—Horsmonden.

3186. Are you acquainted with the cultivation of hops in other parts of Kent?—I am acquainted with the cultivation in almost every part.

3187. Are you acquainted with the cultivation in Mid-Kent?—I farm in Mid-Kent; I do not know much of the Canterbury district. I know part of East Kent, and also part of the Canterbury district, because I was agent to some estates where hops are farmed, and that makes me acquainted with the hop cultivation there.

3188. Are you a land agent as well as a farmer?—I am.

3189. You farm yourself, both in the Weald of Kent and in Mid-Kent?—I did farm in the Weald of Kent, and I do farm in Mid-Kent.

3190. The

3190. The Committee have had different evidence as to the effect of the hop duty upon the grower; will you be good enough to state to the Committee your opinion upon that subject?—Within my experience, which passes over a great number of years, it has been most oppressive in crop years, and in a succession of crops particularly so. Whenever we have had a succession of crops, it has brought the planters to the Chancellor of the Exchequer for an extension of time. I well remember in 1822, when I was engaged with my father in the management of hop land, I was employed to draw up the expenses of the cultivation and charges on hop land, which I presented to the Chancellor and to the House of Commons at the time; and, as must be well known to the Committee, half the duty was eventually given to the planters. And at different times since then, my experience has been the same; and I am sorry to say in receiving the rents, and I have expected, and have always found it so, that a very large hop year is most destructive to the interests of the grower of the article, in consequence of the pressure of the duty upon the planter, when he makes very little money of the hops.

3191. Mr. *Brand.*] Is that pressure felt more in your part of the country than in others?—It is more felt in the Weald of Sussex and the Weald of Kent than it is in Mid-Kent.

3192. Mr. *Beresford Hope.*] To what do you attribute that?—To the fact that in Mid-Kent there are more men of capital than either in Sussex or the Weald of Kent. They turn back upon their capital, and pay the duty out of it, much more than the others do.

3193. Do hops fetch a higher price in Mid-Kent than in the Weald of Kent?—They do. They grow a less quantity, but they make more money. In some years, when Sussex hops lose money, Mid-Kent hops will sometimes gain a little, consequently that makes very little difference.

3194. Is the market for Mid-Kent hops more regular than the market for the Weald of Kent hops?—I do not know that it is more regular; in fact, in ordinary years, of the two, perhaps there is more demand for Weald of Kent hops than there is for the best Mid-Kent hops; they are bought afterwards, later in the season, by the brewers; the others go into the retail trade, where there is a constant demand for them.

3195. In an abundant year, which are the hops which will be mostly sold in the market, the Weald of Kent or the Mid-Kent hops?—In an abundant year there is more difference sometimes than there is in shorter crops. The very best descriptions are in greater demand, and there is more difference in price than there is often in other seasons.

3196. Is the difference in price between good hops and inferior hops greater in scarce years?—No. It was greater last year and the year before than it was in the short crop of 1854.

3197. In an abundant year, which are the most likely, by the end of the year, to remain unsold, the Mid-Kent hops or the Weald of Kent hops?—There would be most of the Weald of Kent hops in bulk, because there is so small a growth of the best Mid-Kent hops in proportion; but there are more required for consumption, and consequently there will be more sold.

3198. Is the planter in Mid-Kent surer of his profit?—Yes.

3199. Sir *Edward Dering.*] Would 1 *l.* a cwt. be the average difference between the value of Mid-Kent hops and the Weald of Sussex hops?—There is more difference sometimes.

3200. What should you say is the amount?—Often 30 *s.* or 40 *s.*

3201. Mr. *Knight.*] What is the average difference in the crop?—There is not a great difference. I think it is from 2 cwt. to 3 cwt. an acre in large crops.

3202. Mr. *Brand.*] If the hops grown in Mid-Kent fetch 90 *s.* a cwt., what would Sussex hops fetch?—Sussex hops would not fetch 70 *s.*

3203. Sir *Edward Dering.*] Would you be satisfied to have the Customs duty entirely taken off if you were entirely relieved from the Excise duty?—As an alternative I would accept of that.

3204. Would you approve of entire free trade?—No.

3205. You complain that the Excise duty is very oppressive?—I do.

3206. You are also aware that there is a Customs duty, and if the Excise duty was taken off, naturally in all probability the Customs duty will be taken off; would you rather remain as you are, or would you like to have an entire free trade?—I should rather have free trade than that we should remain as we are,

Mr. *G. Hammond.*

2 July 1857.

are, because I have suffered so severely, and my neighbours suffer so severely, that I think of the two evils perhaps that will be the least; but I do not choose it; I do not think it would be good policy. Since this Committee has been sitting I have taken great pains in ascertaining it, and I have found that foreign hops can be sold, and have been sold in Belgium for seven years, at an average price of from 38 *s.* to 42 *s.*; therefore that is the price at which we should look to have them in, and I do not think the farmers of Sussex would pay at such a price. They would cost much more; but that is a fact that I cannot vouch for; I have heard it in different quarters.

3207. Sir *John Shelley.*] Have you examined the foreign hops that have been imported?—I have seen some of them.

3208. Have you seen any quantity of them?—In 1854 I saw a great many.

3209. Are they of a very inferior quality?—I saw some very inferior, and some very good. There were some Bavarians that were very good.

3210. Were the quantities that you saw very large?—They were not very large.

3211. Mr. *Locke.*] Were those Bavarians that were good?—Yes.

3212. Were there any Belgians?—Yes; I saw Belgians and Americans.

3213. Were the Americans good?—No.

3214. Are the Bavarians equal to our own?—I am prejudiced in favour of our own; but they tell us that they are.

3215. Did you see the Belgians?—I saw the Belgians.

3216. Did you see the bulk of them?—Yes; no one could move in London without seeing them at that time. There was a repeal of the Customs duty, as we all well know; and many people, who held yearling hops, and fancied that they were going to get compensated, were disappointed by the reduction of the Customs duty. At the same time, I can assure you that that is one reason why I should prefer free trade. I have been growing hops, and paying 18*s.* 6*d.* of duty, when the foreigner only paid 1*l.*; and what has happened may happen again. And it is on that account that, rather than they would rest with a Customs duty of 45 *s.*, of which 25 *s.* is to be taken off when it suits some persons to ask for it, I would have free trade.

3217. Mr. *Knight.*] May we infer from your answer that if the 45 *s.* remained, you would rather keep it as it is?—No, I should not; I do not like to keep it as it is, because, for instance, a man took a farm two years ago, who had just capital enough to stock it; there were 30 or 40 acres of hops upon it; he has had a most extraordinary success the two years, and he is ruined; he cannot meet his payments.

3218. Sir *John Shelley.*] I understand you to say, that you would not like free trade, fearing competition from the foreign hops. Have you seen any quantity of foreign hops that were what we should call really good?—I have seen a great quantity of them.

3219. Were those in the hands of the foreigner or the English factors?—They were in the hands of English people at that time.

3220. In the course of your inquiry, have you ever heard of samples of foreign hops, which were commonly known in the market as scarecrows?—I never heard of them.

3221. Picked samples of foreign hops, which were shown to the English grower to frighten him, as to a quantity of foreign hops coming into the market?—No.

3222. Sir *Edward Dering.*] If there was such a thing, must you not have heard of it?—I never heard of such a thing.

3223. Do you think it is probable that there should be such a thing?—No, I do not think it at all probable; I cannot think it is the fact. I do not like to fancy any set of men could think that we are so easily gullible.

3224. Sir *John Shelley.*] Supposing that they thought we were gullible, is not it possible to pick a sample rather different from the bulk?—Certainly it is.

3225. Is not it possible that the foreigner might take special pains in picking certain samples for the purpose of coming under the denomination of scarecrows?—I should not think he would; if he did, it was a pocket at a time, because I saw the samples taken from the pockets.

3226. *Chairman.*] Have you any security in the case of foreign hops against false

false package?—None whatever; we are quite satisfied that they do do so; there were some found, but they were shifted away before they could be produced.

3227. Mr. *Knight.*] Were not there some very bad English hops in the market that year as well as bad foreign hops?—There were no bad English hops in 1854; in 1855 there were bad English hops in consequence of the immense growth, and of their not being able to pick them before they got into a bad state.

3228. Sir *Edward Dering.*] Do I rightly understand you to say that if there were an entire free trade in hops, from the inquiries you have made, you think an amount of foreign hops would come in at so low a price that they would injure the Weald of Kent and Sussex?—I think they would; that is my firm conviction.

3229. Sir *John Shelley.*] Do you found that opinion upon having seen Belgian hops equal to Kent and Sussex hops in quality sold largely in the market?—I have not seen Belgian hops equal to Kent and Sussex hops.

3230. Are you afraid of any quantity of Belgian hops of equal quality with Weald of Kent and Sussex hops coming to compete with them in the market?—I do not think they would be of equal quality; but I think that they would very materially injure the trade.

3231. Sir *Edward Dering.*] You think they are still good enough for the consumer to buy?—They will be good enough to enable him to say, Those are what I buy; if you will not take the same price, I will not buy of you.

3232. Sir *John Shelley.*] They would become scarecrows in that case?—They would.

3233. *Chairman.*] Have you any proposition to make with respect to the duty, which you think would be an alleviation of the present state of affairs?—I have.

3234. Will you be good enough to state it to the Committee?—The present duty I think does, by its extreme pressure in times of large crops, really make the bounty of Providence almost, I may say, the curse of a great many planters; I have thought a good deal upon the subject; my business, in fact, brings me in connexion with others who have been greater sufferers than I have myself, and I have thought that there might be some plan which would perhaps ease this pressure. I may explain it: When the old duty does not exceed 80,000 *l.*, there should be a duty of 27 *s.* a cwt. charged upon all hops. I say old duty, because that is the reported duty, it is the duty that is known; when the old duty is above 80,000 *l.* and under 140,000 *l.* the duty should be 18 *s.* a cwt. When it is above 140,000 *l.* and under 200,000 *l.* the duty should be 9 *s.* a cwt., and when it is above 200,000 *l.* the duty should be 6 *s.* a cwt.

3235. Will you explain to the Committee the operation of that plan?—I think that when I state this, I ought to be prepared to tell the Committee something like what amount the different items of duty at the scale that I have put will bring to the Exchequer. Now 80,000 *l.* duty will give 7,457 tons, which, at 27 *l.* a ton, will amount in round numbers to 201,339 *l.*, that is a season of blight; 140,000 *l.*, which is at the top of the other scale, gives 13,050 tons, which, at 18 *l.*, is about 234,900 *l.*; 200,000 *l.* gives 18,642 tons, which, at 9 *l.*, is 167,770 *l.* As to the last sum, 390,000 *l.*, I put it at 280,000 *l.*, I thought I would not go to the extreme; and at 6 *s.*, that would come to 156,594 *l.* That, putting the four years together, produces an average of 190,000 *l.* By my scale, when there is a low duty, it would, from the greater rate per cent., be made up with the assistance of the Customs duty. The only time when the Customs duty would be paid, would be in years of short crops, when the price of our commodity would be enough to induce them to bring them; consequently that would be added on, and therefore it is probable that will make the low duty as much as the high one. And the calculation which I am about to give the prices in the trade are derived from the Weald of Kent, thinking that if I went to Mid-Kent, Sussex would be far off; and a very little variation in those prices will make them do for either of them. In the year 1849 the duty paid was 79,000 *l.*; in 1840, 34,000 *l.* The average price of those years which come under 80,000 *l.*, is 9 *l.* I take that, because I would wish to show the action of my duty upon the amount of the price. The average price is 9 *l.*, and the amount of duty I charge them with is 27 *s.*; that is at the rate of 3 *s.* in the pound. Then, again, for the next amount of duty, 18 *s.*, the average

Mr. *G. Hammond.*

2 July 1857.

price of the two years, when that duty falls (in 1851 it was 120,000 *l.*, and in 1843, 133,000 *l.*) is 6 *l.* 10 *s.* Then I take two years when it is above 140,000 *l.*, and under 200,000 *l.*, namely, 1837, when it was 178,000*l.*; and 1838, when it was 171,000 *l.*, and the price was 3 *l.* 16 *s.*, and the duty is 9 *s.*; that is not quite so much as 3 *s.* in the pound. Then above 200,000 *l.*, I take the years 1834 and 1848. In 1834 it was 205,000 *l.*, and in 1848, it was 212,000 *l.* I would not go to the extreme, because I wish to make it as nearly even as I can. In those years the cost is 2 *l.* 12 *s.* 6 *d.*, and the duty is 6 *s.*, so that that is 2 *s.* 9 *d.* in the pound. Now, if we put those years together, where the duty is put at 27 *s.*, 18 *s.*, and 9 *s.*, it comes to what the present duty is, and there is only one step of the scale that deviates from it.

3236. Sir *John Shelley.*] Does that plan produce as much as the duty does now?—In some years they would, but in some others they would not; but that would be a diminution in the charge. When there is a small crop the Government would get more than they do now.

3237. Mr. *Brand.*] Assuming your scale to have been in force for the last 10 years, have you calculated what would have been the loss to the revenue?—No, I have not.

3238. Will you furnish that calculation to the Committee?—I will.

3239. Mr. *W. Martin.*] Is not your duty so graduated as to give a larger return to the Government for a small year than for a large one?—It would.

3240. Do not you contemplate also, in addition to that, that the Government will gain something from the operation of the Customs duty?—Yes.

3241. When a small quantity is grown and a high duty paid, they would get an additional advantage from the Customs duty?—Yes, because as soon as ever the price of our hops is high enough to make it answer their purpose, of course they will come.

3242. Would not that give a still further relief to the grower, because the Government would fare best when the price is highest?—Yes, it would.

3243. Could not the grower also bear to pay it better at that time than at another?—Very much, indeed. I should rather pay 30 *s.* with 80,000 *l.* duty than 5 *s.* with a large crop.

3244. Have not you calculated this duty upon the idea that it would be better for the grower to raise the amount of duty to the same, as near as possible, every year?—It is impossible to do that by anything that I can see, because one year the duty will be 20,000 *l.* and another 250,000 *l.*; but this plan would equalise it much more than the way in which the duty is assessed now.

3245. Sir *John Shelley.*] Do you know any reason why hops should be put upon a different footing to corn, or any other agricultural produce?—Yes; because a plantation of 50 acres of hop land takes 10 *l.* more for manual labour annually, than if they were under other cultivation; and consequently, there being such an immense number of persons dependent upon it, there is every reason why Government should protect it. I maintain that there is considerably more than half a million a year expended in labour alone upon hops, that would not be expended upon the land if there were no hops.

3246. Are not you taking for granted that the same amount of labour would not be expended upon other crops?—It would not.

3247. Practically, supposing a man has a farm of 300 acres, and no hops upon it, would it not pay him to expend the same amount of labour that he does now upon a similar farm with 30 acres of hops?—He could not.

3248. Do you say, from your own knowledge, that there is no possibility of increasing the labour upon a corn farm?—If you were to call upon a man with 300 acres, and ask him if he can expend 10 *l.* an acre upon labour more, he would say that he could not with any chance of its answering his purpose.

3249. Mr. *W. Martin.*] It has been stated, upon the average the labour of 16 men per 100 acres is required for hop land, and the labour of five men per 100 acres for arable land, and the labour of three men for 100 acres for grass land, including haymaking and those sort of things; do you think that is anything near the mark?—It may be so.

3250. Sir *John Shelley.*] With regard to agricultural land not under hop cultivation, does not a great deal depend upon what the man grows. From your experience, is not a large expense incurred in growing roots?—Not very great. I am a root grower myself, and my manual labour upon roots is not more than 2 *l.* an acre, and I do it well too. A pound will do it.

3251. With regard to the sliding scale, do you think that hops are such an exceptional thing, that although it was not found that such a plan answered in the case of corn, it might answer in the case of hops?—I am perfectly satisfied that it must answer.

3252. Do you think that at the time the sliding scale for corn was established it would have answered?—Yes; it did answer; it was the best law that was ever acted upon.

3253. Mr. *J. Locke.*] Do you make any provision for a sliding scale upon the Customs duty?—No.

3254. That is to remain at 45 *s.* all the time?—Yes. I suppose the Government want the money. If I did not think they wanted the money, I would not put my scale so high.

3255. Is not it an object to shut out the foreign hops?—No; but I do not like them coming in so cheap.

3256. If they cannot come in so cheap, will not you shut them out?—No; I want to keep the price up.

3257. By keeping your price up, is not a greater quantity of foreign hops shut out?—No; I do not want to shut them out. Whenever the hops are at a price which will remunerate the foreigner to bring them in, and he can pay the duty, let him bring them.

3258. Do you think that will ever be the case?—Certainly.

3259. Do you think so many foreign hops would come in upon your plan as do now?—I think so many as were wanted would come in.

3260. Do you think that the same quantity of them would come in as do now?—No; I think it would prevent the inferior article coming in, that would injure our sale. I cannot tell. I think that they hold them; but it is impossible for me to tell what would come.

3261. What is the object of your plan?—To ease the grower; it is taking off from one season and putting on upon another.

3262. Would the Government, upon your plan, get as much as they do now?—I do not know; that must depend upon the crop entirely.

3263. Upon your plan, would as many foreign hops come in as do now?—I cannot tell about that; it is impossible for me to tell.

3264. Suppose much fewer came in, would not the Government lose 45 *s.* upon every hundredweight of foreign hops that was shut out?—They lost 25 *s.* upon a great quantity of hops in 1854.

3265. Would not they lose 45 *s.* upon the whole, as those that now come in would not come in then?—They come in now, and are bonded; and if the prices were not good they would be carried back again. But they will come in; some of them will sell, but the others will be sent back again.

3266. *Chairman.*] Have you known them taken back again?—I have.

3267. Mr. *J. Locke.*] Have you made any provision as to a graduated scale of charges for them?—Certainly not.

3268. You have not considered anything about the foreign hops, as to the quantity coming in?—No, I have not.

3269. *Chairman.*] Is it not the fact that your object is not so much reduction of the duty, as a better distribution?—It is, indeed; for, even if they were the same in amount, it would be such a boon to the planters, that I have little doubt they would gladly accept it. When they might have under 80,000 *l.*, and they made 12 *l.* a hundredweight upon those hops, what do they care for paying 27 *s.*, or even 40 *s.* duty. But when his hops are only worth 56 *s.*, and he is called upon to pay 18 *s.*; and there is another thing, I think it is of material consequence, if any plan could be brought forward that would do away with the annoyance to the Government.

3270. Mr. *W. Martin.*] How would your plan answer with respect to the person who was likely to grow a bad sample in the high-priced years?—He would stand just as he stands now; he must go into the market, and sell his article for what it is worth.

3271. Would not he have to pay a duty in that year of 27 *s.*, instead of 18 *s.*, although his article, being of a bad quality, he would get a low price?—That is a very uncommon case.

3272. *Chairman.*] One of the great objections which have been advanced before the Committee with respect to the present duty upon hops is, that it is a duty of an equal amount upon hops of different qualities; does your scheme

Mr. *G. Hammond.* meet that difficulty in any way?—No; I do not think that is of much consequence.

2 July 1857. 3273. You do not attempt to meet that difficulty, because if a Mid-Kent man makes 1 *l.* or 25 *s.* more per cwt. for his hops, he grows 2 or 3 cwt. an acre less?—

3274. Sir *John Shelley.*] If he gets a higher price for his hops, and gets a less crop, does he not also pay a less duty?—It does not make much difference when he is getting a good price; it is in the low-priced years that that comes in.

3275. Is not the competition in favour of the man who grows the best hops against another who grows an inferior quality?—When in Sussex they grow 8 cwt. an acre, and sell them at 9 *l.*, in Mid-Kent they would perhaps get 6 cwt. an acre, and sell them at 10 guineas; in that case the Sussex man would be the best off, but at the low price it is his ruin.

3276. In the years 1840 and 1849, when you say upon the average the Weald of Kent hops were fetching 9 *l.* a cwt., what was the price of Sussex hops?—£. 9. 10 *s.* was the average price between Michaelmas and Christmas for Sussex hops in 1840.

3277. What was the price of Weald of Kent hops in 1840?—£. 10.

3278. Then there is only 10 *s.* a cwt. difference in that year, between the Weald of Kent hops and those grown in the Weald of Sussex?—It does appear so from that calculation; but in 1849 the average in the Weald of Kent was 7 *l.* 10 *s.*, and the average in Sussex 6 *l.* 11 *s.*, and there is 19 *s.* difference.

3279. Mr. *Brand.*] Can you give to the Committee the prices paid for Mid-Kent hops that year?—Yes, the price of Mid-Kent hops in 1840 was 14 *l.* from October to Christmas, and in 1849 it was 9 *l.* 4 *s.*

3280. *Chairman.*] Have you the prices of East Kent hops for the same years?—No, I have not.

3281. Sir *John Shelley.*] Would your scheme relieve the Weald of Sussex growers as against the growers of the 14 *l.* hops in any way, as compared with the present system?—No, I think not.

3282. Does not it leave the competition between the best districts and the Weald of Sussex just as it is now?—Yes.

3283. Therefore if any complaint is made upon that subject, your scheme will not affect it?—It will not; but I think it would be hard to find a planter who would complain of paying 27 *s.* a cwt. upon hops worth 9 *l.* 10 *s.*

3284. Would not they rather have nothing to pay?—I found that the Sussex planters who were examined before this Committee would rather have free trade; but I have met some Sussex planters since, and I have broached this subject to them; and those who were the strongest advocates for free trade pressed me to put my scheme forward, and said that they would support it; they said that they would give up free trade, and join with me with both hands.

3285. By free trade, do not you mean not only the Excise duty being taken off, but the Customs duty also?—I do.

3286. Would not the Sussex grower rather be free from any taxation?—I think he would like to be taxed if his taxation was varied according to his means of meeting it.

3287. Would not he rather have no tax upon his production, provided the Customs duty was left on?—I have no doubt that they would; because one Sussex man said that he was prepared to pay an acreage duty, or anything, rather than have free trade.

3288. Are you a Kent grower?—I am.

3289. Is not what you say with regard to Sussex mere hearsay evidence?—I know something about Sussex. I was born in Sussex.

3290. Mr. *W. Martin.*] A question was put to you just now about the manner in which your plan would fall upon hops of a different price. Mr. Tooth told the Committee that the Weald of Kent grew about 8 cwt. an acre, which, at a price of 9 *l.* 10 *s.*, would be 76 *l.*, and the duty upon which would be 10 *l.* 16 *s.*; and that Mid-Kent grew about 6 cwt. an acre, of which the price at 14 *l.* a cwt. would amount to 84 *l.*, and upon which the duty would be 8 *l.* 2 *s.* Do not you think that the duty would press unevenly in that case, considering merely the difference between the different descriptions of hops?—The

—The duty would not fall in the way assumed in the question. It supposes a good crop and a high price, but you must not make such a calculation, if you take 8 cwt. an acre as the average produce; if you take the ratio upon the lower price, the result will be something very different. Now, in 1852, the duty paid was 244,000 *l.*, the price of Sussex of hops was four guineas, and the price of Weald of Kent hops was 4 *l.* 8 *s*, and the price of Mid-Kent hops was 5 *l.*

3291. Do you consider that 8 cwt. an acre, in the Weald of Sussex, and 6 cwt. an acre in Kent a large crop?—It is too large a crop for 80,000 *l.* duty.

3292. Do you think that the mere difference arising from the quality of the hops between Golding's and Grapes will not, in fact, be much aggravated by your plan?—I do not mean to say that my plan would remedy that, but that is the act of Providence, which no man can say anything about, and I am sure that we cannot expect an Act of Parliament to effect that. It would put every hop grower in a better situation than he is in now; but as for any attempt to compensate a man by Act of Parliament because his hops have been blown about, and to say that he is to be relieved, is impossible to be done.

3293. Sir *John Shelley.*] You have stated that one of the Sussex men who has been examined before this Committee said, that he would prefer 6 *l.* 10 *s.* acreage duty to free trade. Do you remember who that was?—Yes; it was Mr. Selmes.

3294. Do you know where he resides?—Yes; he resides at Hastings.

3295. Are you aware that there is a difference between that part of the country and the Weald of Kent?—Yes.

3296. Therefore, if it would suit him to pay a 6 *l.* 10 *s.* acreage duty, it does not follow that it would suit a man who has a plantation which is 12 *s.* an acre?—No. I was astonished at his answer as regards free trade. I was surprised, because I understood he was going to advocate a different course.

3297. *Chairman.*] Would not it be an inconvenience to the planter that he should not know up to the last moment of the duty being charged, whether he would have to pay 6 *s.* a cwt. or 27 *s.* a cwt. as duty?—He would know very near.

3297.* The Committee were told the other day by Mr. Kennard that the hop betting was of great use in that way. It appeared from his evidence that the hop betting was out by nearly half the amount within three months of the time of fixing the duty. Are you aware that that is the case?—Yes, perhaps it may be so, but it is astonishing how near it comes.

3298. Sir *Edward Dering.*] Supposing your scale were adopted, would not the planter be able to tell practically by the 1st of September about what amount he would have to pay?—Yes; that is a thing which we do not want to know; we should be glad if we did not know it quite so soon. Every one knows what the duty is quite soon enough.

3299. Sir *John Shelley.*] What do you mean by that?—We get the amount, and it is put off for a considerable time, and we like to get it put off longer; the planter is not aware of the official amount of the duty that he is going to be charged with, till he is charged; of course he knows by the amount of his crop what it is going to be.

3300. *Chairman.*] You know the amount of your own crop, but do you know the amount throughout the country?—We do very soon; it always is publicly announced.

3301. Till it was publicly announced, would the farmer know whether he would have to pay 6 *s.* or 27 *s.* per cwt. duty?—Yes; I would say that within a month, or nearly so, before it is declared, they get it within 10,000 *l.* often. There is a good deal of difference between 250,000 *l.* and 80,000 *l.*

3302. Mr. *Brand.*] At what portion of the year is the duty positively declared?—In the beginning of November; certainly by the end of November.

3303. Is not it announced at the earliest possible moment?—It is. It has been announced within the last few years sooner than it used to be, in order to do away as far as possible with betting.

3304. Before that, by your scheme would the farmer know whether he would have to pay 6 *s.* or 27 *s.*?—He might not know whether he would have to pay 6 *s.* or 9 *s.*; but he would know whether he would have to pay 6 *s.* or 27 *s.*

3305. Could he know precisely the amount of the duty which he would have to pay?—No, he could not; and it is a thing that many planters do not take much pains to know.

3306. Mr. *Bass.*] Would not he know it within a mere trifle?—Yes.

Mr. *G. Hammond.*

2 July 1857.

3307. Sir *Edward Dering.*] Would there be any practical inconvenience arising from that?—Not the least, and it would really simplify the matter very much. I have something else to say about it; it is, that if the payment was made at once, all the money would be paid into the Treasury before the 5th of April, instead of holding it.

3308. Sir *John Shelley.*] When is it paid now?—Half is kept until November. I would have the whole of the duty paid within three months of the declaration of the duty.

3309. *Chairman.*] Do you assume, in all these suggestions, that there is no reason for supposing that the Customs duty will be reduced in a scarce year, as it was in 1854?—I cannot think that it could be done, unless some of our friends had hops in bond, and they wanted the duty off. I do not think they could reduce the duty when the planter pays 27 *s.* per cwt.

3310. Did not they reduce it in 1854?—That was when he only paid 18 *s.*

3311. Mr. *Bass.*] What would there be in that case to prevent their reducing the duty to 27 *s.*, which would be the utmost received from the planters?—There is justice to the planter, and I believe the Chancellor of the Exchequer would not do it for the sake of the revenue.

3312. Sir *John Shelley.*] Will it make any difference to the consumer?—No; I only found it make a difference once, and then a gentleman whom I know by report, put on 6 *s.* upon bitter beer.

3313. *Chairman.*] Have you ever found any difference in the quality of the beer according to the price of the hops?—Very little; for it is so small an item in the price of beer, that it makes very little difference.

3314. Have you ever known in a year of scarce crops other articles used in place of hops?—Yes; and I know that when hops are cheap they have used a great many more of them, and have used better ones.

3315. Sir *John Shelley.*] Is not that in favour of the consumer in the quality of his beer?—By my plan I am going to benefit the brewers, and if I benefit them I shall benefit the consumers; because, under the present system, if they grew eight cwt. an acre, they got a great deal more money than if they grew 12 cwt.; but if a man had a less amount of duty to pay he would endeavour to grow more hops, and he would grow a better article, and cheaper; as I have said already just now, it was a most unfortunate state of things. They have had such an extraordinary series of two years, that they have had to sacrifice half their capital.

3316. Mr. *Bass.*] When you say that they would grow more, do you mean that they would plant more?—No; they would grow more per acre.

3317. Would they get a better quality per acre?—They would grow finer hops.

3318. And they would grow more of them?—Yes.

3319. Sir *John Shelley.*] Can they grow finer sorts in certain districts?—I do not know that they can grow finer sorts; I grow Golding hops, and I sold my best Goldings last year for 5 *l.* 5 *s*

3320. Are you aware what they grow in the Weald of Sussex?—Yes.

3321. Can they improve the sorts of hops grown there?—I do not think they can; they cannot grow Golding hops there.

3322. Mr. *Brand.*] Is your idea favourably viewed by the hop growers generally?—It is.

3323. Has it been extensively circulated among the hop growers?—It has not till within the last few days.

3324. Did not the late Mr. Hodges bring forward a scheme of that sort a few years ago?—No; there was something said about bonding, and something about an *ad valorem* duty; but an *ad valorem* duty is itself a thing that could not be carried out.

3325. Mr. *Bass.*] Is not your scheme one of an *ad valorem* duty?—It is something like it, but it is a simple scheme.

3326. Mr. *John Locke.*] How is your scheme an *ad valorem* duty?—It is not an *ad valorem* duty, but it approaches to something like it.

3327. Whether your hops are blighted, or whether they are perfectly good, should you not have to pay the same per hundredweight according to your plan?—Yes; I take the average price.

3328. Supposing the hops are very bad indeed and perfectly blighted, or the reverse, according to your plan you would pay precisely the same amount per hundredweight

hundredweight duty; how is that an *ad valorem* duty?—When my hops are most blighted I make the best price; it does not seem to injure the price often.

3329. *Chairman.*] Would not persons whose hops are not blighted get more than you in such a case?—Very little.

3330. Does blighting do you good?—Yes.

3331. Mr. *W. Martin.*] It appears to me that, by the figures you have arrived at, the growers of the Weald of Kent and Sussex would be paying about 13 per cent. upon their article, although the tax upon the growers of Mid-Kent would be only about nine per cent.; is not that so?—I do not think so.

3332. Sir *John Shelley.*] Supposing that were to be so, would you think it fair?—It would be more fair if it could be equal, but that is impossible.

3333. Sir *Edward Dering.*] Do you admit that that is the effect of your plan?—No, I do not admit it. I was going to observe that, whatever inequalities there may be between different districts at any particular time, I never heard of any system to make them pay anything towards each other.

3334. Sir *John Shelley.*] Do not they pay higher rent, one with the other?—Yes; but rent does not show the value.

3335. Mr. *Brand.*] If there is any inequality in the different districts by your plan, does not that inequality exist under the present system?—Certainly. I do not profess to remove any inequality of that kind. I venture to bring forward a plan that shall give a help to the planter at a time when he requires it.

3336. Sir *Edward Dering.*] And although you cannot suggest a remedy which will meet all cases, according to your calculations would not all growers be benefited by such an arrangement as you suggest?—I am satisfied of it.

3337. Would it not rather tend to diminish than to aggravate the present inequality?—Yes. This week I went round to Ashford, and about the neighbourhood, and broached the subject at a meeting there to some farmers, and they at once approved of it.

3338. Sir *John Shelley.*] Was not that in East Kent?—Yes; in Sussex it was the same. I was in the Weald of Kent, where we had a meeting of the acreage-men and the free-traders, some of whom are in the Sussex collection, and I broached the subject and stated my plan.

3339. Sir *Edward Dering.*] Was it favourably received by the Sussex growers, as well as by the men of Kent?—I surprised them, but they concurred in it without a dissentient voice.

3340. Mr. *Brand.*] Were there any resolutions passed at that meeting?—The meeting was over when I made my statement; there had been resolutions passed, and after the meeting was over I was asked by a friend if I would broach the subject; I broached the subject, and we talked over it.

3341. What were the resolutions that were passed before you broached the subject?—There was a memorial for the postponement of the duty to October.

3342. *Chairman.*] Did not you say that you would have the duty paid earlier in the year?—I would have the duty come in in a quarter.

3343. Do you think that the present system of credit tempts men of inadequate capital to embark in hop growing?—I think it has done that to a certain degree.

3344. At the same time, do you think it would be better to make the duty payable as soon as it was charged?—It could not be paid then, but if they had had a great crop, which now is ruinous, if there were 6 *s.* only to be paid, they would pay it cheerfully.

3345. Sir *John Shelley.*] Why could not it be paid at the time?—Because I do not think there would be money enough in the planter's hands to pay it.

3346. Are you aware that it is a common practice for planters to get advances to meet their payments?—Certainly.

3347. Mr. *Knight.*] Is it not the fact, that, at any rate, they do not pay the duty till they have sold their hops?—That depends upon circumstances. I think two-thirds of the hops are sold by Christmas, generally speaking.

3348. Has not the money been received by the planter before he pays the duty?—Yes.

3349. If two-thirds of the hops are sold before Christmas, why should not the duty be paid then?—Because they have the duty from the year before hanging over them. If they had paid the duty of the year before, or if the

Mr. *G. Hammond.*
2 July 1857.

Government would give it them, they would have no difficulty. The Chancellor of the Exchequer must take half the duty and give us the other half, and take the new duty immediately; and it would come into the Exchequer when it is wanted.

3350. Sir *John Shelley.*] Do you think that that would be generally agreeable?—I do. I can speak to that without consulting with my brother planters.

3351. Mr. *John Locke.*] Do I rightly understand you to say that the accommodation which is given to the planters is given by the country bankers?—A great quantity of it. It is not entirely so, because in the hop trade the factors and the merchants will make advances.

3352. Are the country bankers the people who furnish the great proportion of it?—When there is a banking firm in the neighbourhood there is no doubt that the advances are immense. I know they have been so in the Weald of Kent; they have been so at the bank at Cranbrook. The amount of money that was paid in that way was immense; and when it was called for, and they had not the money at once, the duty was put off and paid in July, and the planters were in no better situation when the duty has been put off than they were before; for we, as planters, have made no money since the time it has been put off till now. If it is called for, and the man has no money to pay it, if he has a character for integrity and industry known to the bankers, they will make him an advance.

3353. Mr. *Knight.*] The Committee is informed that the average of the duty for the last 10 years is 400,000 *l.*; do you propose to reduce the average to 190,000 *l.*?—No; in making out my return, I spoke of the old duty, but that is not the tax that is to be paid.

3354. Is not it probable that your plan would reduce the duty to one-half?—The probability is that it might reduce the duty from 20 to 25 per cent.

3355. Mr. *Bass.*] Did I rightly understand you to say that a series of large crops was disadvantageous to the grower?—Certainly.

3356. What is the sort of crop most beneficial to the grower?—A moderate one.

3357. *Chairman.*] What amount of duty would you consider to represent a good year?—I consider that 150,000 *l.* duty would be a very moderate crop, and would make a good price. When the duty was 146,000 *l.* duty, the average of the Weald of Kent was 6 *l.* 1 *s.* When the duty was 140,000 *l.* duty, it was 7 *l.* 6 *s.*; they got most money for their hops when they sold them at once at from seven to eight guineas per cwt.

3358. Mr. *Bass.*] How many foreign hops would be required to make up a consumption, if you only grew 140,000 *l.* duty?—That I do not know. It has been told us that the average consumption was 250,000 *l.* duty.

3359. Why should you wish to grow less than that?—Because we have grown so many hops for the two last years, that there cannot possibly be any want in the country.

3360. Do you mean to say that the old hops would be as good for brewing bitter beer as the fine fresh hops?—I know that they are used for that purpose.

3361. Do you know in what proportion to the new hops they are used?—Not at all.

3362. Supposing that the brewers had had to brew from them entirely, what would have been the result?—You can always get a few new hops to use with them if you require it.

3363. If you were to be told that more than two-thirds of new hops are used, would you be prepared to believe it?—I have no doubt that it is so; but when I talk of 150,000 *l.* duty, we must not forget what was grown in the two last years.

3364. Am I right in supposing that you wish always to have 140,000 *l.* duty, or that you would only wish to have it now and then?—I do not wish to have it always; but I think that, average it one with another, we grow enough, and that is what I wish to do.

3365. What would be the consequence if you grew 150,000 *l.* duty one year and 250,000 *l.* duty the next year?—A fair average price which it would pay the brewer to give, and it would pay the planter to sell at.

3366. How can that be if the average consumption is 250,000 *l.* duty?—I think the consumption last year was so immense that it is impossible to tell what it was.

3367. Was

3367. Was not that increased consumption with a view to making better beer?—It was.

3368. If you grew a short crop of hops, must you not look for worse beer?—We will not grow them if we can help it, especially after the two years we have had. But if I had to pay only 6*s.* or 9*s.* per cwt., in such cases I should grow as much as I could, and when I had a higher duty I should be well able to afford it.

3369. Are they growing more or less Goldings in Kent than they did 20 years ago?—I was not a grower of Goldings 20 years ago; I do not think that there is so great a proportion as there was 20 years ago; they have extended their plantations, and they have in some cases farmed them rather higher.

3370. Sir *John Shelley.*] Are you a grower of Goldings principally?—I am; but I grow different sorts of hops.

3371. Mr. *Bass.*] Is it true that more Goldings are grown now than were formerly grown?—I should think they are less, in proportion.

3372. You have told the Committee what is your opinion of the relative quality of the best foreign and the best English hops?—I answered that question as far as I knew; but I am a planter, and I do not understand these things.

3373. Should not you say that the best Bavarians were equal to any English hops?—I should.

3374. Have you ever known any hops better than those?—I do not know that I have.

3375. Have you ever had any such grown in England?—I do not think I have; but since I have been in this room I have heard talk of scare-crows; and perhaps those which were shown to me were picked samples, so that I cannot speak positively upon the subject.

3376. Sir *John Shelley.*] How many full crops do you think it would be profitable for a farmer to grow?—He might grow them once in three years.

3377. Would you wish for all the rest small crops?—I should like them to be moderate.

3378. Does not that rule apply to hops only, which in this respect differ from every other agricultural produce?—Just so; and that is the very reason that I have come here to-day, because I should like to see some plan that would prevent the bounty of Providence from being our ruin.

3379. Mr. *Knight.*] Do you think the system of marking pockets beneficial or not?—I think it is very beneficial.

3380. Do you think that it is absolutely necessary?—I think it is absolutely necessary. It is a protection to a consumer, and it is a protection to the planter also.

3381. Sir *John Shelley.*] Is it a protection to the planter in Sussex, as well as in Kent?—I think some of the Sussex hops are good, and might make more if they had not the mark. But I am sure that if a Sussex man did not mark his hops, he would give his commodities such a character that nobody else would like to have them.

3382. Do you think that people who buy hops judge by the sample, and by the look, rather than the mark?—I think so; but if I judge of the hops by the sample I should be slow to take a fine mark. I would not attempt to sell the hops with a fine mark to any gentleman who was a brewer, and who understood his business. He would wish to know what was inside it, and he would know a good article; but there are some men who buy hops who do not know anything about it; and I look upon the mark as a great security to them.

3383. If a man does not know his business, is not the mark a great security to him?—It is a security to him.

3384. Is it not the case that a man who knows his business judges by the sample, and that the mark is of no use?—I think it affords a security that the hops come from the district they profess to come from.

3385. Does not the man who does not know his business depend a good deal upon the mark?—He does.

3386. Sir *Edward Dering.*] Would any man who is perfectly ignorant of hops go into the market to buy on his own experience?—No; I do not think they do that.

3387. Mr. *Knight.*] Do you think that the system of marking makes people who are not good judges more safe than they otherwise would be?—I think it is a decided protection to them.

Mr. *G. Hammond.*

2 July 1857.

3388. *Chairman.*] Is there any other subject on which you wish to state anything to the Committee?—I have made out a table of the charges of collection, because I have heard questions upon that subject put to several of the witnesses before this Committee.

3389. Have you anything particular to correct in the statements which have been made upon that subject?—I should beg to say, that one of the estimates given here was so enormous, that I really could not at all agree with it. It was 36 *l.* an acre for the cultivation of an acre of hops.

3390. Mr. *Beresford Hope.*] Was not that Mr. Carter's statement?—It was.

3391. Sir *John Shelley.*] What is your average?—£. 22. 6 *s.* 6 *d.* upon the average of years.

3392. *Chairman.*] That is in Mid-Kent?—It is.

3393. Mr. *Bass.*] What is the expense of picking, drying, and duty?—£. 2. 4 *s.* per cwt.

3394. *Chairman.*] Will you hand in the statement of your expenses?—

[*The same was handed in, and is as follows:*]

CHARGES on an Acre of Hop Land in *Mid-Kent.*

	£.	*s.*	*d.*
Digging, opening, and cutting	1	10	–
Sharping poles, lay out, and poling	–	19	6
Use of poles per acre	6	–	–
Tying completed	1	–	–
Digging and chopping round hills	–	9	–
Horse labour, Summer	1	10	–
Ploughing to hills, and throwing in, and earthing	1	–	–
Putting up poles blown, branching, and sundries	–	15	–
Manure and putting on	5	10	–
Stripping and stacking	–	8	–
Rent and tithe	2	15	–
Taxes	–	10	–
£.	22	6	6

N. B.—No interest of capital charged.

Manor Farm, St. Mary Cray, 1856.

CHARGES on Hops per Cwt. after commencing Picking till they are sold.

	£.	*s.*	*d.*
Picking, per cwt.	–	10	–
Pulling poles, measuring, and cartage to oast	–	2	6
Drying, fuel, and labour	–	6	–
Package and packing and twine	–	2	9
Carriage to market	–	1	–
Commission	–	2	8
Repair, hop kiln, and wear of bins, cloths, and pokes	–	1	1
Duty	–	18	–
£.	2	4	–

Manor Farm, Saint Mary Cray, 1856.

3395. Mr. *Knight.*] Do you consider the cost of cultivation in Sussex more or less than that in Mid-Kent?—I consider it is more than in Mid-Kent; I consider that the cost of cultivation in Sussex is more than that in the Weald of Kent, and also more than that in Mid-Kent.

3396. *Chairman.*] Why is that?—The drainage is one expense, and the drainage is not required in the best lands in Mid-Kent. You invariably get the best hops off land that does not require drainage.

3397. Mr. *John Locke.*] Do you live in Mid-Kent or in North Kent?—I live in North Mid-Kent. My hops would be called Mid-Kent hops.

3398. Mr. *W. Martin.*] In what parish is your hop garden situated?—In St. Mary Cray.

Mr. *James Harris,* called in ; and Examined.

3399. *Chairman.*] YOU are a Hop Grower, in Hampshire ?—I am, to a small extent.

3400. To what extent ?—I farm about a dozen acres.

3401. Have you been long a hop grower ?—I have been a grower 21 years ; I have always been upon the same land.

3402. In what part of Hampshire is your farm ?—At Sutton ; it is about six miles from Farnham.

3403. Are there any larger hop growers in the neighbourhood ?—Yes ; in Alton, and Farnham, and Binstead, and that district.

3404. How many acres do the farms consist of ?—From 15 to 100 acres ; Sir Thomas Miller's is from 50 to 60 acres.

3405. Are the hop growers owners of large farms ?—A good many of them are ; some are very large.

3406. You farm yourself about a dozen acres of hops ?—Yes.

3407. How much other land do you farm ?—I farm about 520 acres altogether.

3408. What proportion of hop land to other land do any of those other farms possess ?—It is different ; near Binstead and Alton there is a larger proportion of hop land to the other farms ; that is in the immediate neighbourhood of Alton.

3409. Have any of them as much as a quarter of their farms in hops ?—No, I do not think so, where they farm to any extent ; but some of them have nearly that.

3410. What sort of hops do you grow ?—White bines principally ; I have one acre of green bines, but mine are principally white bines.

3411. What kind of soil is it that you grow your hops upon ?—The soil that I grow my hops on is principally clay, with a chalk sub-soil ; as you get to Binstead you get a marl land, and all that side of Alton.

3412. What depth do you go before you get to the chalk ?—We vary from two to four feet.

3413. Is not the white bine a fine quality of hop ?—Yes.

3414. Is not that what is known as the Farnham hop ?—Yes, principally. There is not quite so much white bine as there used to be, but there is a great deal.

3415. Mr. *Brand.*] Is it grown in any other district but the one in which you reside ?—I am not acquainted with any other hop district besides my own.

3416. Are there any other kinds of hops besides the white bine grown there ?—The green bines and other hops. I have heard of some few Colegates and Goldings.

3417. Sir *John Shelley.*] Is the white bine of the same quality as the Golding ?—No ; it is a different quality from the Golding.

3418. Mr. *Bass.*] Is it like the Canterbury white bine ?—I do not know ; it is, perhaps, the same I have seen, the Kent hops and the Sussex hops.

3419. Are you in the Farnham branch, or in the country branch ?—I am in the Farnham country branch.

3420. Sir *John Shelley.*] What is the height of the poles that are used for your hops ?—I use 12 feet poles ; they will use 14 or 16 feet poles when they get nearer Farnham.

3421. *Chairman.*] Will you state to the Committee what you consider the expense of cultivating an acre of hop land ?—I never took that into consideration, being a small grower. I was not aware that I should be called here to-day. In taking that point into calculation, I should think it is something like 22 *l.* or 25 *l.* an acre. If I had known that I should have been called upon, I would have looked a little into it.

3422. Mr. *Bass.*] Is that exclusive of the expenses of the picking and the duty ?—Yes.

3423. *Chairman.*] What do you set the other expenses at ?—Picking, drying, and duty we generally consider at something like 50 *s.* a cwt. ; from 40 *s.* to 50 *s.* a cwt.

3424. Mr. *Bass.*] Does not that include the selling ?—Yes.

3425. *Chairman.*] What do you consider a good crop ?—We grow very little ; I was

Mr. J. Harris.
2 July 1857.

I was looking back to my previous crops since I received the orders the other day to come here, and I find that my crop for seven years previous to 1855 was 4½ cwt.; but 1855 was something more. In 1855 it was 18 cwt.; but last year it was a little over half a ton; I never grew more than half a ton on my own land the whole of the time, since I have been a farmer, until 1855.

3426. How do your hops compare in the market with Kent Goldings?—The Kent Goldings are worth considerably more than our hops as we are told; it is a very difficult matter to get at what they are worth.

3427. What do the white bine hops, such as you grow, fetch?—Last year we made from 65 *s.* to 70 *s.* The year before, I calculated that I sold in the early part of August at 1 *s.* a pound, and it was not a bad speculation. They would have been sold at four guineas, or something of the kind, if I had taken them to market.

3428. Mr. *Brand.*] When white bines are worth 70 *s.*, what would the Goldings be worth?—I have seen very little of Goldings. I have seen Mr. Payne's growth of Farnham and at Weyhill.

3429. *Chairman.*] Do you generally send your hops to the Weyhill market? Generally, I have sent them to the London market occasionally.

3430. Are hops grown in your district generally sent to the Weyhill fair?—The hops grown in our district are generally sent to Weyhill.

3431. Do those grown in the Isle of Wight go there?—That is in our district.

3432. Sir *Edward Dering.*] Do you think that the price of the white bine hops, with the best description of farming, does not amount to as much as that of the Kent Goldings?—I do not know. I have been told that the Goldings will fetch more money than the best Farnham hops; that I have been told for a fact.

3433. *Chairman.*] What is the rent of hop land in your neighbourhood?—I should think from 40 *s.* to 4 *l.* or 5 *l.* an acre. I put my own at 40 *s.* compared with the rest of my land.

3434. Mr. *Bass.*] Are you speaking of the country district exclusively?—Exclusively; I do not know the rent of any other lands.

3435. Are there any lands set at 4 *l.* 10 *s.* an acre in the country district?—Not less. I should say that it would be worth that, supposing the whole land to be in hops; I should not think it is separately let at that. I am taking Binstead, and some of those districts upon the marl land, where they grow large crops, and good. They grow three or four times as much as I can.

3436. Sir *Edward Dering.*] You do not know of any instances of that?—I do not. Generally speaking, the farmers of our neighbourhood all occupy it with other land, as well as hop land, and it is all let together.

3437. *Chairman.*] What is the extraordinary tithe rentcharge?—It is 10 *s.* in my parish; 13 *s.* 4 *d.* in several of the neighbouring parishes.

3438. Have you none higher than that?—I do not know of any higher.

3439. Is hop growing considered a less profitable business than other kinds of farming in your neighbourhood?—I have never found it so profitable; I have found it the reverse, I think.

3440. Is that your experience, when there is a good crop?—It is not a profitable business at all.

3441. Is that the general opinion of the farmers?—I think not. I think, in the best hop districts, that they grow them at an advantage.

3442. *Chairman.*] Do you consider your land as some of the best hop growing land?—I do not

3443. Mr. *Bass.*] Do you consider it some of the worst?—As far as regards hops I do.

3444. Then your land is not an average specimen of the growth of the country?—Not in quantity, and probably not in quality. The quality I think is not equal to some Farnham hops.

3445. *Chairman.*] How long does a hop garden last in your district?—I have some that have been in hops this 40 years or thereabouts.

3446. Do you know of any that have been in existence longer than that?—Yes, no doubt there are lands which have been in hops longer than that in our neighbourhood. The principal land that I have, has been in hops from 8 to 11 years.

3447. To what circumstance then do you attribute the fact, that hop growing has not been a profitable business, except with men who have particularly good land?—

land?—We do not grow a quantity sufficient, according to the prices, to pay our expenses.

3448. Do those who occupy the best lands grow larger crops?—Yes, they do undoubtedly grow larger crops.

3449. How much do they grow on the best lands?—It depends upon the year. I have heard of as much as 25 cwt. being grown to the acre; but I cannot answer for that; I only have it by hearsay; a ton to the acre is sometimes grown.

3450. From your own experience, how much have you grown an acre?—I have grown 18 cwt. an acre.

3451. Mr. *Bass.*] How much do you grow?—Something about four or five cwt.; I do not like to say I always do. I think that the year before last I was particularly lucky in my crop; but upon the average of years I have farmed my hops in a different way to which I have farmed lately, for I have neglected it very much before.

3452. *Chairman.*] Do you consider that it is only because you cannot grow such large crops as your neighbours that hop growing has not been a profitable business to you?—I do not consider that; I cannot consider that it will be profitable to anyone at the price that hops have sold at last year. I know many hops that sold at from 60 *s.* to 70 *s.* generally, and the expense of bringing them to market, the drying and picking, and the duty, amounts to 50 *s.*

3453. Do you think that it would be a benefit to the farmers if there were no Excise duty upon hops?—Yes, I do.

3454. Should you be willing, if you had no Excise duty, to part with the Customs duty too?—We would rather keep the Customs duty on if we can, but if not, we should be fully prepared to lose the Customs duty too, rather than not have an alteration. But I think that we ought to be protected by the Customs duty if we can.

3455. Mr. *Bass.*] Why do you think so?—From the large expense we are at in cultivating the hop land, and we cannot compete properly with the foreign hops.

3456. Would there be any harm if it is not a crop that pays?—Probably not.

3457. *Chairman.*] Can you tell the Committee any circumstances connected with the cultivation of hops in the Salisbury collection?—Our land used to be in the Salisbury collection. I believe the collections go according as they collect the other taxes.

3458. There being no return under the Salisbury collection is not in consequence of land in any particular part of the county having gone out of the collection?—No; all the land from Salisbury to the Isle of Wight has been included in our collection.

3459. Mr. *Beach.*] Are you acquainted with the general feeling of the country on this subject?—I am; I went all over the market to find the feelings of the inhabitants on Tuesday; and I went over the neighbourhood on Saturday, and again on Monday.

3460. Is the feeling tolerably unanimous?—Yes; there were only a few individuals who were not in favour of the duty being taken off.

3461. Sir *Edward Dering.*] What is the general feeling?—That the Excise duty should be repealed.

3462. And that the Customs duty should be kept on?—Yes.

3463. Sir *John Shelley.*] I understood you to say, that the feeling of the district was rather than that they should remain as they are, they were prepared for free trade?—Yes.

3464. Mr. *Knight.*] Do you know anything of the prices at which foreign hops come into the market?—I do not.

3465. Are you aware that a considerable quantity of foreign hops do come in?—Yes.

3466. And that they pay a duty of 2 *l.* 5 *s.*?—Yes.

3467. And that, though paying a duty of 2 *l.* 5 *s.*, they still come into competition with our hops?—Yes.

3468. Supposing that the duty of 18 *s.* was taken off one, and 2 *l.* 5 *s.* off the other, do you think that you still could compete with them?—That is a question which I cannot answer positively.

3469. Do you think you could sell your hops at 27 *s.* less than you do now?—No.

Mr. J. Harris.

2 July 1857.

3470. What is the lowest price at which you could bring your hops into the market, without the duty?—I consider that they will be brought to market at something like 56 *s.*, or from that to 60 *s.* I do not think they can be grown at a profit at less than 60 *s.*, and there is very little profit then.

3471. If the foreigners can sell hops under 60 *s.*, you do not think you can compete with them?—Not if he could sell the same quality.

3472. Have you looked into this matter?—I have not.

3473. Do you think that the gentlemen of your district, who are hop growers, have looked into the question at all?—I dare say they have; but it is impossible for me to say if they have done so.

3474. Do you assume that fair hops could be sent to the market by foreigners under 60 *s.*?—I cannot say what price foreigners can bring them in at. I am speaking of the price at which we can bring them in ourselves.

3475. Did not you say that you can compete with the foreigner at 60 *s.*, but not under that?—I think not, if their quality is like ours.

3476. Sir *John Shelley.*] Does not it all depend upon quality?—Yes.

3477. Mr. *B. Blakemore.*] Have you taken into consideration the fluctuations of price, when you say that 60 *s.* is the price at which you can compete with the foreigners?—I was assuming an average.

3478. Have you an average for three years, or five years?—I have not an average with me; if I had known it would be asked for, I would have brought an average of my own growth.

3479. What is the average of your growth?—I find the average of my growth, from 1848 to 1854, something like 4 ½ cwt. per acre.

3480. Do you know what you got for them?—Various prices; that I do not know.

3481. Mr. *Knight.*] Supposing you grow 4 cwt. per acre in one year, can you sell at a profit at 60 *s.* without the duty?—Not with that growth.

3482. Then your average must be much higher than 4 ½ cwt. if you are to sell at 60 *s.* with a profit?—When I mentioned that sum, I was thinking of a larger average than that.

3483. You could not sell, upon the average of six years, at 60 *s.*?—No, certainly not.

3484. Sir *Edward Dering.*] What quantity must you grow to make a profit at 60 *s.*?—I must grow 10 to 12 cwt. an acre.

3485. Mr. *Knight.*] Would not they cost you more than 3 *l.* per cwt.?—Yes.

3486. You would then lose money, if you sell at that rate?—Yes.

3487. And you have lost money?—Yes, I have.

3488. And the only thing that enables you to grow hops is having some years higher prices?—The fact is, I have cast my land in with other lands, and I should not have kept on hop farming so long, if I had not had other land to farm with it.

3489. Do you do it in expectation of realising a large profit in some particular year?—Yes.

3490. Should you like in this particular year, when you are to get your profit, to see foreign hops come into the market at 60 *s.*, or less?—I do not wish to see them brought in, but I am one of those who are in favour of the principle of freeing our own growth; we have had the Customs' duty off all sorts of corn, and we are ready to take the Customs' duty off hops, so as to have free trade in our own produce; and if we cannot get free trade in hops without having the Customs' duty taken off, I should like to see it.

3491. It is only in certain very dear years that you expect to realise the money that you have lost in other years?—Certainly.

3492. If foreign hops come in at a low price in those dear years, will not that be liable to reduce your high price?—Yes; if they inundate us with foreign hops, we must grub our land.

3493. Do you think the effect of taking the Customs' duty off would be very likely to cause you to grub your land?—It might.

3494. Sir *John Shelley.*] Do you think that, supposing your hops are selling at 3 *l.* a cwt., it is likely that foreign hops should be sold at 60 *s.*?—No, I think they would raise the price of ours if they were sold for 60 *s.*

3495. Mr. *Bass.*] Did you ever know of foreign hops coming in before 1854?—I saw them in 1854.

Mr. *J. Harris.*

2 July 1857.

3496. Was not there a higher price that year than you have ever known before?—I have known as high a price.

3497. Sir *Edward Dering.*] Have you the items of the cost of cultivation, which you set at 25 *l.* an acre?—That is a rough calculation of it, as near as I can calculate it here.

3498. The picking, drying, and duty being 50 *s*, if you took the duty off, would it be right to put the picking and drying at about 30 *s.*?—It would be somewhere thereabouts.

3499. That, upon 7 cwt. an acre, is 10 *l.* 10 *s.*?—Yes.

3500. Making a total cost, with the expenses of cultivation, of 35 *l.* 10 *s.* an acre?—Yes.

3501. Did not you say that you would require seven cwt. an acre, sold at 3 *l.*, to enable you to compete to advantage?—Yes; but I intended my answer to refer to a large growth of hops; if you come to 3 *l.* an acre, I say that we cannot grow hops at a profit with less than from 10 to 12 cwt. an acre.

3502. Mr. *B. Blakemore.*] Is not the object of expensive cultivation to get a large crop?—We generally look to do that if we can; but a half crop will suit us better.

3503. Is the present system calculated to encourage the hop growers to endeavour to obtain a large crop?—I think not.

3504. Do you think that a moderate crop, with higher prices, is better than a very large crop with such prices as generally follow a large crop?—Exactly so; at the present time.

3505. *Chairman.*] Do you grow any other kind of hop yourself besides white bines?—I have some few green bines planted some years ago.

3506. Which are the most liable to blight?—The white bines upon my land were subject to blight, and I was recommended to plant green bines instead; but I find the green bines have generally proved as subject to blight as the others, and they do not produce upon a dry soil as large a quantity as the white bines do.

Mr. *James Hartridge,* called in; and Examined.

Mr. *J. Hartridge.*

3507. *Chairman.*] ARE you a Hop Grower yourself?—I am.

3508. Have you been a hop grower for a great number of years?—For 16.

3509. How many acres do you cultivate yourself?—I have about 70 acres at the present time.

3510. Do you farm your own land?—I generally hire land; I have some little of my own.

3511. In what part of Kent is it situated?—At Yalding and Horsmonden, in the Weald of Kent, bordering on Mid-Kent.

3512. What sort of soil is that?—The soils vary very much; some are gravelly, some clay, and some loamy.

3513. Is any of your land on the Ragstone Hills?—It is not.

3514. The Committee understand that you can explain the scheme of the acreage duty; will you be good enough to do so?—I have attended several meetings where the acreage scheme has been brought forward. I may explain (I have given it a good deal of consideration), I believe that it is the very best thing that has been brought forward yet to equalise the duty on the planters, so as to remedy the existing evil which is now the difference between the low-priced hops and the high-priced hops; the low-priced hops paying a much greater per-centage than the high-priced ones do.

3515. What do you propose that your acreage duty should be?—£. 3 per acre.

3516. Mr. *W. Martin.*] That you would put upon the land, whether it grew a ton or whether it grew half a ton; whether it was high-rented or low-rented?—Exactly so.

3517. *Chairman.*] Is it not the fact that your scheme is not exactly one for commuting the present duty for a duty per acre, but that it involves a reduction of the amount?—It does.

3518. To what extent?—I should think to the extent of about half the present duty.

3519. Mr. *Brand.*] That would involve a loss to the revenue of about one half?—Yes.

Mr. *J. Harris.*

2 July 1857.

3520. Sir *John Shelley.*] Supposing the scheme of a fixed duty per acre were to be established, is 3 *l.* the extent to which you would go?—It is.

3521. You would not like to have it 6 *l.* 10 *s.*?—I should not.

3522. Which should you think best, a 6 *l.* 10 *s.* acreage duty or the present system?—I should prefer a 6 *l.* 10 *s.* acreage duty to the present system.

3523. Which should you prefer, a 6 *l.* 10 *s.* acreage duty, and no free trade, or free trade?—I do not exactly understand the nature of free trade, because we have a large extraordinary tithe upon our hop land.

3524. Which would you prefer, the Customs' and Excise duty off, or to pay 6 *l.* 10 *s.* fixed duty per acre?—I should prefer both Customs' and Excise duty off.

3525. *Chairman.*] Do you think that, considering you are paying extraordinary tithe, you would be entitled to a certain Customs' duty to counterbalance that?—I do.

3526. Mr. *Brand.*] What is the amount of the extraordinary tithe?—The extraordinary tithe is 17 *s.*

3527. *Chairman.*] Is that usual in the neighbourhood?—I believe it is.

3528. Sir *Edward Dering.*] Have you contemplated what amount of Customs' duty would countervail the extraordinary tithe?—I have not exactly done that; that is a peculiar thing to calculate upon.

3529. *Chairman.*] Do you think that 30 *s.* a cwt. would counterbalance it?—I should suppose it would.

3530. Sir *John Shelley.*] You have said to-day that your reason for wishing an acreage duty was to equalise the duty upon planters, as between the low-priced hop and the high-priced hop?—Exactly so.

3531. Is not it a question of profit after all?—It is.

3532. Do the low-priced hops pay as well, per acre, as the high-priced hops?—Certainly not, under the present system.

3533. Would they under any system?—I think, in all probability, they would in many districts; that would not apply to all districts.

3534. Supposing that to be so, do not you think that a fixed duty, per acre, would really equalise the duty between the low-priced and high-priced hops?—There would be individual exceptions; but there would be exceptions to anything that could be laid down as to trade.

3535. In the case of free trade, would not it still remain a question of quantity and quality, and consequent price?—I believe it would tend to throw some of the poor lands out of cultivation.

3536. *Chairman.*] Do not you think that an acreage duty would do that?—Very few; I should suppose that there are few grounds but what now pay more than that.

3537. Sir *John Shelley.*] You are supposing it to be an acreage duty of 3 *l.*?—Exactly.

3538. *Chairman.*] Have you at all considered what proportion of the land there is in the county of Sussex that now pays less than 3 *l.* duty upon the average of years?—I know of none.

3539. Are you acquainted with the Weald of Sussex?—I know the great bulk of the Weald of Sussex.

3540. You do not know of any land in Sussex that pays less than 3 *l.* an acre duty upon the average of years?—Not to my knowledge.

3541. If there is any such land, would an acreage duty throw it out of cultivation?—Certainly.

3542. Sir *John Shelley.*] Is there any land in Kent that pays more than 3 *l.*?—Yes.

3543. Does your land pay more than 3 *l.*?—Yes, it does.

3544. Would not this plan be beneficial to you?—It would.

3545. Would it be beneficial to the land which pays less than 3 *l.*?—I am not aware of that land.

3546. Mr. *B. Blakemore.*] What collection are you in?—I am in the Canterbury collection; the district that I live in is more immediately in the Rochester district, although it is taken into the Canterbury district.

3547. Did not you grow a large crop of hops in 1856?—We did.

3548. Do you know what the average amount of duty per acre in the Canterbury district last year was?—By the return which I hold in my hand, it appears that it was 10 *l.* 9 *s.*

3549. Would

3549. Would you have that reduced to 3 *l.*?—Exactly.

3550. Do you know what was the average acreage duty in the Rochester collection?—Yes; it was 9 *l.* 17 *s.* 1 *d.*

3551. Would not there be a large reduction in that case?—Yes.

3552. In Sussex, was not it 11 *l.* 7 *s.* 1 *d.*?—Yes.

3553. And you would have 3 *l.* there?—Yes.

3554. Just look at the Hereford district; was not the average acreage duty 1 *l.* 3 *s.* 9 *d.*?—Yes, it was so.

3555. You would have that 3 *l.*?—Yes.

3556. Would not that be rather a large increase?—It would.

3557. Take the Worcester collection, the last in the list; was not it 1 *l.* 11 *s.* 9 *d.*?—Yes.

3558. Would you equalise it by a general acreage duty all over the country of 3 *l.*?—Yes.

3559. Without any reference to their growth?—I would.

3560. Do I rightly understand that your reason for that is, that it would equalise the profits upon the growth of the coarser and the finer sorts of hops?—Yes.

3561. Will you show us how that would come about?—The Hereford and Worcester districts were blighted last year, and in 1854 we had a blight and they had a crop; then we should be called upon to pay 3 *l.*, although, under the present system, we could not be called upon to pay 10 *l.*

3562. Can you give the Committee the average for any 10 years of what you would have paid by the acreage duty, and what you have paid by the duty as it now is?—I have not that, and I cannot give it.

3563. Sir *John Shelley.*] Have not you paid a good deal more than 3 *l.* an acre upon the average?—Yes.

3564. Mr. *Bass.*] What is your average growth per acre in the last 10 years?—About from seven to eight cwt.

3565. If it were eight cwt., would you not pay 7 *l.* 4 *s.*?—Yes.

3566. Mr. *B. Blakemore.*] Do you think 3 *l.* would be enough instead of 7 *l.* 4 *s.*?—We are seeking relief from the present system, because we are too largely taxed. The hop cultivation shows a loss at the present time.

3567. How long have you grown hops?—Sixteen years.

3568. Have you gone on for 16 years at a loss?—Sometimes at a loss, and sometimes at a profit.

3569. What years were at a loss, and what at a profit?—There was always a loss in a heavy crop; but there was a profit in a small crop.

3570. How does it come out in the long run?—I have drawn out the scale for 10 years. I have taken the official returns per acre, and I have taken my own prices at which I have sold. I am not able to get other parties' prices, but I have those of my own crops.

3571. *Chairman.*] Has your hop-growing upon the average of the last 10 years been a losing concern?—I should think it has been rather so; but I do not believe that I have had much loss or much benefit.

3572. Do you think it pays you as well as the cultivation of other crops?—Sometimes we think it does, and at other times we think not, which causes us either to lessen or raise our plantation, according as things are going on.

3573. Has it paid you as well upon the average of 10 years as other crops?—I should think not.

3574. Mr. *B. Blakemore.*] You are not sure?—I am not sure.

3575. Mr. *Knight.*] Do you think you would have been better off if you had grubbed your hops 10 years ago?—I do not know that; I could not have done so.

3576. *Chairman.*] Why could not you have done so?—I hold my farm upon a lease, and my bargain is not to take up the hops.

3577. Mr. *B. Blakemore.*] Is not that a usual condition in your district?—I think it is.

3578. *Chairman.*] Are there not a certain number of oast houses and things, for the cultivation of hops, upon a farm?—Exactly so; if the hops were taken off, I fancy that there would be an immense amount of capital sunk and doing nothing.

3579. Mr. *Beresford Hope.*] Is not wood land necessary for a hop field?—Yes.

3580. Mr. *J. Locke.*] Did I rightly understand you to say, that you have

Mr. *J. Hartridge.*

2 July 1857.

not made any distinct calculation of your profit or loss in detail?—I have made a calculation as to the profit or loss in each particular year on the hop plantation.

3581. Will you give the Committee the result of that calculation; do you make out a loss last year?—The loss in 1856 is 17 *l.* 7 *s.* 5 *d.* per acre.

3582. What was it the year before?—The year before I have a considerable portion of hops unsold. I have those hops still, upon which I have paid the duty; therefore I cannot say what the loss would be upon that peculiar year.

3583. What was it the year before that?—The year before that the loss was very small.

3584. How much was it?—Eight shillings and a halfpenny.

3585. Mr. *B. Blakemore.*] How much did you grow that year?—My growth was extremely small; but the growth of the district was 1 cwt. 3 qrs. 8 lbs.

3586. Mr. *J. Locke.*] What result do you produce in the next year?—In 1853 the profit was 28 *l.* 16 *s.* 4 *d.*

3587. What was it the year before?—In 1852 there was a loss of 6 *l.* 14 *s.* 3 *d.*

3588. The year before that, in 1851?—In that year the profit is 5 *s.* 3 *d.*

3589. What was it in 1850?—A loss of 3 *l.* 11 *s.* 3 *d.*

3590. The year before that?—A loss of 7 *l.* 6 *s.* 6 *d.*

3591. And in 1848 what was it?—A loss of 25 *l.* 0 *s.* 4½ *d.*

3592. What was it in 1847?—A loss of 14 *l.* 18 *s.* 2 *d.* Probably my growth in some of those years was from two to three and four cwt. an acre more than the official return, but this is taken from the official return.

3593. Sir *John Shelley.*] You take the official return of the produce per acre, and you set your own prices upon your own hops, and your own expenses, as against that?—I do.

3594. Mr. *Knight.*] Do you mean to say that that is not the result of your own hop-growing?—No; it is not.

3595. Is not it an imaginary calculation?—No; it is not an imaginary one.

3596. Sir *John Shelley.*] In those years, is the result of your experience and your own farming, that in one year you made a gain of 28 *l.* an acre, and that in all the others you made a loss?—Not in all the others.

3597. Mr. *J. Locke.*] Do not you put down on that paper what you actually sold your hops for?—Yes; but not my own actual growth; I have put down the average growth of the kingdom.

3598. You put down what you sold your hops at per cwt.; but not how many cwts. you sold?—No.

3599. Mr. *Knight.*] Do you think that that gives the Committee a fair impression of the condition of the average hop growers in England; do you suppose that the losses have been as great, and the gains as little, as that per acre?—No; I do not.

3600. Do you think that that calculation can be of any use to the Committee, except to give them a false impression?—It shows that the loss in the high duty years is very considerable; and that there is a profit in the low duty years.

3601. Does not it show that every hop grower in England must have been ruined if that account had been a correct one?—Certainly it does not.

3602. Then, is it not calculated to deceive the Committee?—No; I fancy not, because the Committee are aware that the expenses of cultivation in all the districts is not the amount I have put down.

3603. Mr. *J. Locke.*] Is this mode of calculating profit and loss peculiar to you; or is it the mode which all farmers adopt?—I do not know of any others having adopted the same calculation.

3604. Mr. *B. Blakemore.*] Did not you make that paper out for the purpose of giving evidence before this Committee?—I did.

3605. Is your crop larger or smaller than the average crop of the district, year by year?—I suppose it is about equal to our district; I should suppose there is not much difference.

3606. Have you lost the amount of money which has been shown in your calculation?—No.

3607. Mr. *Bass.*] If your average produce has been the same, and the average price has been the same, how is it that your average results have not been the same?—Because, upon some of the better soils, upon the hill land, they do not grow

grow so many hops per acre as we do; and this being an official return, we must grow more to make up for those places where they do not grow so much.

3608. Mr. *B. Blakemore.*] Did not you put your own expenses of cultivation against the average growth?—Exactly; I could not get other people's expenses. I could only take my own.

3609. You have some of your 1855 crop unsold?—Yes; I could not sell it.

3610. Mr. *J. Locke.*] Then do you omit from that calculation what you grew yourself?—I do not think it is fair to take my own crop. I should not have taken my own prices had there been any official return of prices, but there is no official return of prices.

3611. In making a calculation from your own prices, did not you forget an essential ingredient in the calculation, namely, the quantity which you sold?—I did not forget it.

3612. How was it you did not put it down?—I did not think it fair to do so.

3613. Why was not it fair?—I was not aware that I came here to show my own case; but I came to speak upon the case of the country more at large.

3614. Sir *John Shelley.*] Is there anything peculiar in your expenses of cultivation?—No, nothing very peculiar.

3615. Are your expenses of cultivation higher than the average or lower than the average expenses of cultivation?—Higher than those that have been given here by a great many witnesses. I have calculated it at 27 *l.*

3616. Mr. *B. Blakemore.*] What is your parish?—I live in the parish of Yalding.

3617. Mr. *J. Locke.*] Did you prepare that calculation yourself?—Yes, I did.

3618. From your own calculations, or from somebody else's?—From my own.

3619. Mr. *W. Martin.*] Was not your object to show the general bearing of the duty upon the whole district, and not the bearing of the duty upon your own individual case?—Exactly so.

3620. And you thought that you would best attain your object by this mode of calculation?—That was my idea.

3621. Mr. *Knight.*] What is the total amount of loss per acre, by your calculation, for the 10 years?—The total amount of loss per acre for the 10 years is 78 *l.* 10 *s.* 1 *d.*

3622. What is the whole gain per acre?—£.29. 1 *s.* 7 *d.*

3623. Do you think that, upon the average, on every acre of hops grown in England, there has, in the last 10 years, been a loss of 78 *l.* 10 *s.* 1 *d.*, and a gain of 29 *l.* 1 *s.* 7 *d.*?—No, I do not suppose that.

3624. You say that some persons have done better than is represented on that paper; you have done better yourself, have you not?—I have.

3625. And you think that a great many other persons have done better?—They have.

3626. Do you suppose that half the hop growers in England have done better?—I do.

3627. Must not the other half have done worse in that case?—No, not exactly. I do not suppose those prices would be the full average prices, on account of the hill crops making greater prices, and the less price for cultivating some of the Worcester and Hereford grounds.

3628. Is not the paper that you have brought calculated to give a false impression to the Committee?—I am not aware of that. I brought this paper merely to show that the losses were in the years of heavy duties, and the profits in years of small duties, so that we pay the duty out of our own pockets on the heavy crops.

3629. Mr. *B. Blakemore.*] Are you the only hop grower in Yalding parish?—No, I am not.

3630. Could you tell me what your actual crop was in 1856?—I am not prepared to say distinctly what my growth was in 1856; but I suppose it was about 17 cwt. per acre.

3631. What is the average upon which you have based your calculation?—Nine cwt. and 20 pounds.

3632. *Chairman.*] Have you any further argument on behalf of the acreage duty to state to the Committee?—Yes; I should suppose that if the acreage principle were offered to the planters generally, almost all the planters would concur

Mr. *J. Hartridge.*

2 July 1857.

concur in it and be satisfied, it being a less tax upon their neighbours, and very much simplified.

3633. Sir *John Shelley.*] You were speaking of a 3 *l.* acreage duty; not one of 6*l.* 10*s.*?—Exactly.

3634. *Chairman.*] Do you think it is a fair principle that the man whose crop per acre is worth less, should pay as much as the man whose crop is worth more?—Not exactly; but he does so under the present principle.

3635. Would not it be so under the acreage duty?—Yes, but to a less extent, I think, than it is at present.

3636. Still it would be so to some extent?—It would be so to some extent.

3637. Do you think the farmers generally in your neighbourhood approve of this scheme?—They do.

3638. Do the landowners?—I know that some of the landowners do. I am not aware of any dissentients.

3639. Do the landowners who let their lands at 15*s.* an acre approve of it?—I am not aware of any who let land at 15*s.* an acre in our neighbourhood.

3640. What does land let at in your neighbourhood?—£. 1., 25*s.*, and 30*s.*, and more; and near Maidstone there is land which fetches, in some instances, as high as 6*l.* an acre.

3641. Do you think that the landowners whose land lets for 1 *l.* an acre will be satisfied with an acreage duty of the same amount as land which lets at 6 *l.* an acre?—I do.

3642. Mr. *Brand.*] Do you speak from experience of the opinions of the landowners?—I have heard several landlords speak upon the subject, and I am conversant with the opinions of some of them upon the point.

3643. Sir *John Shelley.*] Are you conversant with the Weald of Sussex?—I know something of it.

3644. Are you conversant with the landlords there?—My own knowledge is much less there than it is in other parts.

3645. Do you know that land has been let in the Weald of Sussex at 12*s.* an acre?—I have heard so.

3646. Do you think that a landlord or tenant getting or paying 12*s.* an acre, would like to be put upon the same footing as a man paying 6*l.*?—Yes.

3647. Upon what ground do you think so?—Because he grows larger crops.

3648. Are they sufficient to make up the difference between 12*s.* and 6 *l.*?—Nearly so.

3649. What is the difference in quantity between the Weald of Sussex and the land that is let for 6 *l.*?—I should suppose upon the average three cwt. per acre would be the quantity; but I could not speak very distinctly upon that, because I have not cultivated land in the Weald of Sussex.

3650. What is the price of the hops in the district that is let for 6 *l.* an acre?—They vary very much. That is the district that generally grows high-priced hops.

3651. What have high-priced hops fetched this year?—I suppose 90*s.* a cwt., or from that to 5 *l.*

3652. What is the price of Weald of Sussex hops?—Seventy shillings a cwt. I suppose upon the last two years.

3653. So that there is 1 *l.* a cwt. difference, is not there?—Yes; more.

3654. Does that make up the difference between 12 *s.* and 6 *l.* an acre?—Not exactly.

3655. Does it come near it?—No; not very.

3656. Is it a right principle to make the duty equal upon those two kinds of land, the proportions of the value being judged by the rent that they bring?—Probably, not exactly so; but I think that it is a much better principle than the one we are going on.

3657. You think it better than the present system, and that is all you say?—I do; the present system of Excise is a very vexatious one, it is very unequal and unjust.

3658. Mr. *Bass.*] Have you any land in Yalding parish that lets for 6 *l.* an acre?—I should think not.

3659. Do you know any land that lets for 6*l.* an acre?—I do.

3660. Where is that?—In the parish of Leeds.

3661. You spoke of the quantity of hops that is grown in some parts of the parish of Yalding; is not Yalding a large parish?—Yes.

3662. Are

3662. Are not some parts of it in the Weald and some in Mid-Kent?—Yes.

3663. Is not your land in Mid-Kent?—My land is in the Weald.

3664. Do not the planters grow fine hops in one part of Yalding parish?—They do.

3665. Do not they grow small crops?—Yes, they do.

3666. Do not they consequently get a higher price?—They do.

3667. Mr. *W. Martin.*] With regard to the difference between land worth 12 *s.* an acre and land worth 6 *l.*, is not it the fact that larger quantities of hops are grown upon the cheap land than upon the dear land?—Yes.

3668. Then, according to the present system, is not a larger duty paid upon the cheap land than upon the dear land?—Much larger.

3669. Then, by your scheme, will not greater relief be given, as compared with the present system, to the cheap than to the dear land?—Decidedly so.

3670. Therefore is not it more to the interest of the owners of cheap land to adopt this duty, as compared with the present system, than it is to the owners of dear land?—Yes; and I believe they would gladly embrace it.

3671. Mr. *B. Blakemore.*] Did not you say that the average of the crops is taken from the official returns?—Yes.

3672. Is not the parish of Yalding in three different districts?—It is.

3673. Does not it contain 1036¼ acres?—It does.

3674. What did you state as the average growth of the whole kingdom?—Nine cwt. 20 pounds.

3675. Do not you know that the average of your own parish was more than that?—Yes.

3676. Was not it 13 cwt. at least?—I suppose it was. I have one remark which I wish to make relative to what has been stated here respecting the duty. I have seen the duty taken at 17 *s.* 6 *d.* or 18 *s.*, but I find the duty to be 19 *s.* 7 *d.*

3677. *Chairman.*] Do you in that amount allow for the 10 per cent. deduction for tare?—The 10 per cent. is taken off from the amount as calculated; it is taken off from the return as made.

3678. Sir *John Shelley.*] Do you pay 19 *s.* 7 *d.* and the 10 per cent.?—The 10 per cent. is first taken off.

3679. Is your actual payment 19 *s.* 7 *d.*?—The actual payment is 19 *s.* 7 *d.*

3680. *Chairman.*] Can you tell the Committee what the amount of the duty is per pound?—It is 2 *d.* per pound, and five per cent. on that.

3681. Mr. *J. Locke.*] Is not 10 per cent. taken off the weight of the pocket?—It is. The 10 per cent. is taken off the cloth before it is officially announced.

3682. One cwt. of hops would be 112 lbs.; how many pounds are taken off before they calculate the duty?—There would be little more than 10 lbs. in that case taken off for cloth and loss of weight.

3683. Mr. *Bass.*] You say the duty is 19 *s.* 7 *d.* per cwt.?—I do.

3684. That is 2 *d.* per pound, and five per cent.?—It is.

3685. Have you allowed the 10 per cent. which comes off?—The 10 per cent. is taken off beforehand, and I have calculated the duty upon the reduced amount.

Samuel Lancaster Lucas, Esq., called in; and Examined.

3686. Sir *Edward Dering.*] WHERE do you reside?—Near Maidstone; at Wateringbury.

3687. Is not there a good deal of hop land in your property?—There is about 600 acres now of hop ground.

3688. Is that in your own occupation?—No; it is all let.

3689. Have you ever grown any hops yourself?—Yes, I have; some years ago.

3690. How long have you been personally acquainted with the cultivation of hops?—Since 1845.

3691. We have had a good deal of evidence before this Committee with regard to the profit and loss attending the cultivation of hops; can you give the Committee any information, according to the best of your judgment, as to that subject?—I believe that in my district the cultivation of hops is decidedly profitable, upon an average of years, when engaged in by people who have proper capital.

3692. Does not it involve a great amount of capital?—I should not be disposed

S. L. Lucas, Esq.

2 July 1857.

posed to let a farm to a man unless he had for each acre of hops at least 125 *l.*; of course he would not require that sum to be put at once into the cultivation of the land; but he ought to possess 125 *l.* at least. I think that that is quite a low estimate.

3693. He ought to have that to fall back upon?—I think that he ought to have 55 *l.* for supplying the poles and cultivating the ground for the first year, without the expense of picking, drying, duty; and the rest he should have in some shape or other that he could lay his hands upon in case of the losses he is likely to incur.

3694. What is your idea with reference to the cost of cultivation?—I think it costs from 25 *l.* to 30 *l.* They pay 30 *l.* in some parts of my district.

3695. That is the expense up to the time of picking?—Yes.

3696. What do you put the picking, drying, and duty at?—That varies so much according to the quantity and the quality of the hops; but I should think it would be from 2 *l.* to 50 *s.* per cwt.; if the hops are not good, you will pay a great deal more than if they are.

3697. Can you speak as to the amount of capital required in shape of oast houses and other conveniences for the cultivation of hops?—I think that the landlord is required to spend from 20 *l.* to 30 *l.* an acre. I do not think he could afford proper accommodation to the tenants for less than 20 *l.* an acre, and in many instances it must come up to 30 *l.* an acre; and I think that would be much increased by the fact that the size of the farms is small in our district. A man having 40 acres of hops would have a considerable sum of money, and he will be entitled to live in a certain way; and he would want to have a certain kind of house to live in, and it would be a much bigger house, and cost much more than a house upon a similar farm in an arable district.

3698. About what is the general acreage of the farms of which you are speaking?—I think that the general acreage of farms ranges from 70 to 200 acres, but there are some very much smaller; there are many bits of land of 15, 14, and 13 acres, and even less than that.

3699. What is the size of the larger description of farms?—From 70 to 200 acres.

3700. What would be the proper proportion of hop land, as compared to arable land, upon a farm of 200 acres?—I have three farms only of the extent of 200 acres each, and I think that on those three farms there are about 250 acres of hops; that is to say, that upon about 600 acres there are 250 acres of hops.

3701. Mr. *Knight.*] Do farms let better for having hops upon them?—It would be utterly impossible to let land at all without a proportion of hops.

3702. Would not the property be much depreciated in value if there were no hops upon it?—It would be of no use.

3703. Sir *John Shelley.*] Is the population of your district large?—The population in our parish is about a man to an acre; but there are two breweries there. I think the population would be nearly a man to an acre in the district generally. I am speaking only of a small district some few miles square.

3704. Mr. *Knight.*] Would the grubbing of that land throw a large number of people upon the poor-rates?—If there were no hops, we could not keep up the population.

3705. Mr. *W. Martin.*] By a man to an acre, you mean a living soul to an acre?—Yes; that would be a man to five acres, according to the usual calculation.

3706. Sir *Edward Dering.*] Supposing anything to diminish the area over which hops are cultivated, do you consider that it would be prejudicial to the district?—I think it would be ruinous.

3707. Upon what account?—The small size of the farms necessitate building. I have four or five farms at least, varying perhaps from 50 to 110 acres, and those farms would each of them have from 2,000 *l.* to 3,000 *l.* worth of building upon them. There is one farm particularly on my land at this moment, which has by no means unusually good buildings for its size, and I calculated the other day that there actually are about 3,000 *l.* worth of buildings upon the farm. It is 106 acres, I think, in extent. Now it would be out of the question that a man should be able to pay as rent more than four or five per cent. upon the value of those buildings, which he would get nothing at all for, unless he grew the hops, so that the landlord would, in fact, get no rent for his land, only a per centage on

on the value of his buildings; 100 acres of land would not afford a living to a man, if he had to pay the labourers upon the farm. We have a population which we must employ in some kind of way, and we cannot employ it without the hops.

3708. Mr. *Beresford Hope.*] Including the hop land, which works in with it?—That has a considerable bearing upon it.

3709. Sir *Edward Dering.*] What should you say was the additional manual labour upon an acre of hop land over arable land?—It is difficult for me to answer that question, because my estate is so mixed up with hops; but I should say we should employ four or five men for hops, where one man only would be necessary for arable land. I conceive that that would be the very least; but, perhaps, it is a true statement of the thing. But, supposing that calculation to be correct, it does not give at all an idea of the extent to which the grubbing of hop land would put labourers out of work, because all the women and children would not be employed in the way they are now; they gain great sums by picking the hops, and all that kind of work. They pay their rent, and often more than pay their rent, by the labour of women and children.

3710. Mr. *B. Hope.*] Do not the men themselves work in the woods in the winter?—They work there in the winter and the spring.

3711. Sir *Edward Dering.*] Would not one great source of profit, which would be cut off, be the wood harvest, which the labourers make by cutting wood in the winter?—If the value of hops was materially affected by any change of legislation, the value of wood would be much affected also. I do not know whether we should cease to cut the wood or not; but the value of the wood would be materially affected by the diminution of the cultivation of hops.

3712. Is not there a great deal of wood land which is kept up only for the production of poles?—I have 500 acres of wood land, some of it planted with chesnut.

3713. How often do you cut it?—It varies from 17 or 16 years to about 12 years, and the chesnut 10 years.

3714. Mr. *Beresford Hope.*] Is not that peculiar copse land especially adapted for poles, and therefore under a different cultivation from other copse land?—Precisely.

3715. Mr. *W. Martin.*] What is the value per acre of the land which is grown with underwood?—I have sold chesnut plantation as high as 57 *l.* 10 *s.*, and as low as 44 *l.*; but never less than that.

3716. How many years growth was there upon that land?—Ten years growth; I think, in round numbers we may say that it is worth 50 *l.* an acre, with a 10 years growth upon it.

3717. Mr. *Beresford Hope.*] May we not say that a chesnut plantation is preferred to hazel as regards new plantation?—A great many thousand pounds have been spent upon chesnut plantations of late years.

3718. Which would be utterly ruined if the hops went out of cultivation?—It would be reduced in value one half.

3719. Mr. *B. Blakemore.*] What wood do you use for this purpose?—My plantations are principally chesnut.

3720. Do you cut them in 10 years?—I cut them after 15 years first, and then after 10.

3721. Mr. *Beresford Hope.*] Does not nearly every one plant chesnuts now?—Yes.

3722. Sir *John Shelley.*] Is the wood plantation for hops increasing in your neighbourhood?—They are increasing the chesnut plantations; that is to say, the plantations of the better quality.

3723. Sir *Edward Dering.*] Is not the effect of that to make inferior underwood of less value?—I do not know that; I think the inferior underwood is of comparatively small value; but the underwood is capable of improvement without being made into a chesnut plantation, as large sums have been spent in what we call filling it up; we plant chesnut plants in the spaces, and it costs many pounds an acre before we get any return; you have to spend a large sum upon an acre, even in that sort of way.

3724. Mr. *Beresford Hope.*] May not you divide the underwood into two classes, one wild and the other under cultivation for hop poles?—You may divide it into three classes: first, there is the underwood, which varies according

S. L. Lucas, Esq.

2 July 1857.

to the quality of the soil; then there is the underwood which is under cultivation, being improved by chesnut plants, and upon which I say that 10 *l.* or 12 *l.* an acre must be spent before there is any sort of return; and then there is the pure chesnut plantation, which costs a large sum, of course.

3725. Sir *John Shelley.*] Did I rightly understand you to say, from your experience of the cultivation of hops in Mid-Kent, that where a man has sufficient capital to carry it on, it is very profitable?—Yes.

3726. Mr. *Knight.*] You do not agree with the last witnesses, who stated the ruinous effect of plantation?—I have 300 acres in the Weald of Kent, and I have about 100 acres of hops; it is one farm of about 200 acres, and another of somewhere about 80; and I consider that the farm of 200 acres is one of the most valuable, if not the most valuable, of my property, and more profit has been got out of that than out of the rest of my land. With regard to the Weald of Kent, I have no hesitation in saying that it is a profitable occupation.

3727. Sir *Edward Dering.*] You do not find the duty press so heavily on you as to render the cultivation disadvantageous?—I consider that where a person has plenty of capital, the Excise duty is a positive benefit.

3728. *Chairman.*] Have you ever had instances of distress in Mid-Kent?—There have been instances of distress; last year there was a good deal of distress.

3729. Was not there also distress in the years 1848 and 1849?—Yes, in 1848 more particularly.

3730. To what do you attribute the distress in those years?—I think it arises from the fact, that men without capital going into the plantation of hops, were induced by some years of prosperity to increase this plantation. Supposing I had 50 acres of hops, and I got two or three good years, and I were very much charmed with the growing of hops, and were to increase my plantation by 25 acres, if there came three or four very bad years, I should make my loss upon the 75 instead of the 50; and therefore I consider the reason of the distress was that men of small capital, with a small acreage to make a profit upon, were tempted by a large profit to increase their plantation.

3731. Sir *John Shelley.*] Has that been the case under the present system?—I think so, certainly.

3732. *Chairman.*] Is not the system of long credits an inducement to a man of inadequate capital to enter into hop growing?—Yes.

3733. Do you consider that it would be better if the duty were paid at the time it is charged?—I do not think it would be right or just to collect the back duty. It becomes due at November, but I think it might be fairly collected in the month of March following.

3734. Do you think that if it were to be paid at the end of a period of six months, it would have the effect of depressing the prices in the market?—No, because I consider that three-fourths of the hops are sent to be sold between the 1st of November and the 1st of March.

3735. Is not it the fact, that the price of hops often goes down when the duty day is at hand?—I do not think it does materially; I am inclined to think that is more the case with the November collection than with the May collection. People very often press their new hops into the market, in order to pay the duty; but if the whole of the duty were made payable in the spring, that would not be so. I think the duty coming so close upon the crop is an evil, but not the payment within six months. I think that it is not the credit that does good or does harm in this respect, but collection coming upon the crop is a bad thing, because it induces a man to sell when otherwise he would not.

3736. Sir *John Shelley.*] Do I rightly understand you to say that you consider the Excise duty a positive benefit to the hop grower?—To the legitimate hop grower, not to the man who has not capital.

3737. To that man it is a positive benefit?—A certain number of acres are required to produce a certain number of hundredweights, and beyond that amount any production must be a loss, inasmuch as it cannot be consumed. If you do anything which would tend in any way to induce people to increase their cultivation beyond a certain amount, you do mischief.

3738. Do you think that the Excise duty prevents any increase in the growth of hops?—No, I do not say that; I say that it tends to check it.

3739. I understood you to say, that it was a great benefit. Do you confine that to the neighbourhood where you grow hops?—Yes; I speak of my neighbourhood.

3740. Is not anything which tends to reduce the amount of cultivation, rather inimical to your interest?—I think that if you look at it in the right light it is not so. If I had a certain amount of acres of hops in a parish that I had been accustomed for a certain number of years to have, or about a certain number of acres of hops in a particular district, and I permanently reduced the proportion of acres which I was cultivating with hops, I think it would do a great deal of mischief; but it does not follow that I ought generally to increase it, because the fact of increasing it may produce a demand for labour which cannot be supported in the long run.

3741. Mr. *Beresford Hope.*] Is not it just like a manufactory, where there are a great number of people round who must be supported?—I do not think it is like a manufactory, because there the market is unlimited, and the market for hops is very much limited. To a certain extent it is so.

3742. Sir *John Shelley.*] You have stated that in your district hop-growing is a very profitable business; do you think that any change can be made that would so affect your district that any amount of your land would go out of cultivation?—I think my land is very good land; it would go out of cultivation much later than many other parts; but I am inclined to think that any change in the Excise duty would have the effect of lowering the value of good land, and lowering the quantity of good hop land in cultivation. I am inclined to think that in case the Customs duty is repealed, it would have this effect, that the low districts would be almost entirely ruined by free trade, and that most of that low land would go out of hop cultivation, or would only be cultivated because it can be done at a small expense, inasmuch as it pays to bring such land into cultivation, and then grub up again, and so on, thus bringing it into cultivation for corn at a little expense. I think it would affect the value, that is to say, decrease the profits in Mid-Kent.

3743. *Chairman.*] Are you aware that almost every witness who has been before us has endeavoured to prove that hop-growing has been at a loss?—I have heard a great deal of nonsense talked upon that subject.

3744. You have stated that hop growing is not at a loss?—I have.

3745. Would not that rather lead the Committee to the conclusion, that the hop duty, as it is now, is in favour of your portion of the country, and not in favour of the other portion, where they have been losing money?—I do not think that that should be applied to hops. Where they are properly cultivated, upon a particular class of soils, they can be cultivated at a less expense, to produce a better quality of hop, and that better quality of hop will find a better market. I think it is more to be considered as a question of soil than anything else; if we have a particular soil, with certain mineral constitutents, it will produce a certain quality of hop; but that is no reason why you should rob Peter to pay Paul, in order to induce people to grow a bad quality of hops in Sussex.

3746. Do you think that the districts which are placed more desirably for the growth of the best quality of hops can grow hops enough, upon the average of years, for the consumption of England?—I have no doubt that the plantation could be enormously increased; and if the consumption be not increased, as it appears not to have done of late years, I do not think it impossible that the East Kent and Mid-Kent could grow hops for the whole consumption of England; but I wish to speak guardedly upon that point, for I know that the consumption might be enormously increased.

3747. Do you think that if anything were to cause the grubbing of hops in the Weald of Sussex, a great quantity of land in Kent might be brought into cultivation?—I think so. There is a great deal of land near Tonbridge, Hadlow, Peckham, and so on, where I believe the profits are considerably more than with us.

3748. Mr. *B. Blakemore.*] Are not there other hop districts besides the Wealds of Kent and Sussex, in Herefordshire and Hampshire?—Just so.

3749. Mr. *Beach.*] Do you consider the existing Excise duty more favourable to the landlord, or to the occupier?—I consider it favourable to the landowner, and also to the occupier who has proper capital.

3750. Sir *John Shelley.*] Will capital do without a good soil?—I think that a man will have a great advantage over another, let his soil be what it may, if he have the proper capital. These crop years alternate; sometimes they have three or four bad years, and then a good one, and then that pays for those three or four bad years, and gives a good profit. The man who has large

S. L. Lucas, Esq.

2 July 1857.

capital can wait, but the man who has not, at the end of some years has to give it up.

3751. Do you think that a man in the Weald of Kent having 125 *l.* an acre, and a man in the Weald of Sussex having the same capital, will make the same profit?—Undoubtedly.

3752. Do you think that the losses which have been adduced in evidence before us, in the Weald of Sussex, are to be attributed to the want of capital?—Yes; there may be particular farms which do not pay; and if a man possesses a farm that does not pay, he loses money by it. There are exceptions to every rule, but I think the rule is so.

3753. Mr. *B. Blakemore.*] Do you think that the investment of 125 *l.* an acre will be as good an investment as 10 *l.* an acre upon other land?—A man need not have 125 *l.* invested in the land; he should possess 125 *l.* to each acre.

3754. Sir *John Shelley.*] In letting an arable farm, what capital should you think the tenant ought to have ready to put upon that farm?—I have not an arable farm; but I believe 10 *l.* or 12 *l.* an acre is reckoned about the amount.

3755. Mr. *Brand.*] Did I rightly understand you to say that you considered the duty an advantage to the cultivation of hops?—Most unquestionably.

3756. Should you consider that that advantage would be increased by an increase in the amount of the duty?—I think the consumer pays the duty; and that therefore it is a matter of indifference to the legitimate hop grower what the duty is.

3757. *Chairman.*] As far as your experience goes, is the effect of the Excise duty that the producer gets so much more for his hops?—Yes, of course.

3758. Sir *John Shelley.*] Do you think that the consumer is the person who really pays the duty?—Yes.

3759. Mr. *B. Blakemore.*] Do you mean by the consumer, the man who drinks the beer?—Yes; if I drink beer, I pay the duty for what I drink; I do not pay the duty for my hops.

3760. Have you any idea as to the extent in which the consumer is loaded with the present existing Excise duty, in the value of beer?—I made a calculation with respect to that, in order to make a statement at a meeting which I attended; and I think the result I came to was, that a man drinking a quart of beer a day, would pay something like 11 *d.* a year.

3761. It would be scarcely perceptible?—It would be scarcely perceptible; that is to say, upon such beer as men ordinarily drink. I do not mean to speak of bitter beer, and the finer qualities of beer, but the ordinary beer that a man drinks. I wish to say that, without positively affirming that it is exactly correct.

3762. *Chairman.*] Do you consider that the brewers take it out in the quality of the beer?—I think so; it is impossible that a money difference to the buyer should be made upon so small a matter as the Excise duty; but if the Excise duty was taken off, the force of competition would force the brewer to put the 11 *d.* into the quality of the beer; probably he would pocket the 11 *d.* for a few years, and then some brewer would give better beer, and the others would be obliged to do the same.

3763. In years when the hops sell at a high price, do not the brewers indemnify themselves by lowering the quality of the beer?—I should say that they strike an average of profit and loss. I conclude that when the materials for brewing are expensive the brewer loses money, and when they are cheap he gets the money back; and he does not act directly on the consumer in that way. But I have no right to give an opinion upon that subject, because I do not know; and without making an analysis, I should think it would be impossible for any man to ascertain that.

3764. Mr. *Knight.*] You have told us that a large capital is necessary per acre; do you think it is necessary that plantations should be very large?—By no means. I have all quantities upon my property, from 1 ¼ acres up to 130 acres; and I believe that a number of, comparatively speaking, poor men cultivate hops much more properly, and more securely, and more with regard to capital, than a number of rich men do, because they give as capital their own labour to a great extent, and therefore they do not require so much money by any means; and I think it does not matter whether the man has capital in money or capital in labour as long as he confines himself in cultivating hops to the amount which he has capital to meet. I conceive the Excise duty unquestionably

tionably beneficial to the individual, provided he has so many acres of hops as he has capital, in some shape or other, to cultivate them. I think it becomes a profitable business when he has proper capital.

3765. Mr. *B. Blakemore.*] If he farms with a proper capital, would a series of good crops be disadvantageous to him?—They would be disadvantageous to him, inasmuch as he would lose money on a series of years; but if he has capital enough to wait a little for good times, my experience has been that they always have come, and we have no right to question that they will come again.

3766. *Chairman.*] How do you account for the complaints and the desire for relief that prevails among so many hop planters?—I conclude that they grow hops without proper capital, and upon a soil not favourable for the growth of hops; that is to say, the quality produced does not pay so well as the better quality; and they have not sufficient capital to wait their time, and they lose money.

3767. I think you told us that even in your own district, in the years 1848 and 1849, there was a great deal of distress?—I do not recollect precisely about that; but I think that in the year 1848 there was considerable distress.

3768. Are not you aware that there was a deputation which went up to the Chancellor of the Exchequer?—Yes, in 1848 or 1849.

3769. Was not that distress caused in a great measure by the duty?—Not at all.

3770. Sir *John Shelley.*] Did not they go to get the duty postponed?—They did go to get the duty postponed, because it was the readiest item of their expenses that they could get reduced. One cannot come and ask the Chancellor of the Exchequer to pay one's labourers, but you can come and ask him to let you off a little longer in paying the duty.

3771. *Chairman.*] Was not the large amount of duty they had to pay that year an aggravation to their losses?—No doubt it was an aggravation; it was an item of the cost.

3772. If the duty had been heavier would not it have been worse?—Yes.

3773. In the Weald of Kent does not the duty per acre amount generally to more than it does in Mid or East Kent?—It does.

3774. Must not the incidence of the duty therefore be heavier upon the Weald land than upon the more favoured land?—I think so, unquestionably.

3775. Does not that in some measure account for the greater distress in the Weald of Kent?—I think not; I think in those farms that I am acquainted with in the Weald of Kent, which are conducted with proper capital, and enterprise, and skill, and in such situations as are tolerably favourable for the growth of hops, as much, and possibly more, money is made than in Mid-Kent. I know nothing of Sussex except from hearsay.

3776. Did not you say that you supposed the distress in Sussex might arise from want of capital?—Yes; and in some localities from want of proper soil.

3777. Does not the fact of there being a duty, that the planter must pay at a certain day, render it necessary to possess a greater amount of capital than he would otherwise require?—I cannot say that; because the man ordinarily sells his hops, I believe, three months, and in some cases six months, before he pays the duty.

3778. Suppose the hops are not selling at a remunerative price in the market, must not he raise the money, either by borrowing or selling his hops at a loss, to meet the duty day?—Yes, he would. Assuming he has capital enough to enable him to pay the duty, without borrowing or selling his hops at a loss, a part of the money that he ought to possess may be applied to paying the duty.

3779. Does not the duty necessitate the possession of a greater amount of capital?—The man has his hops ready for market in November, and he does not pay the amount of duty till May; he has, most clearly and unquestionably, pocketed the 12 months' growth in nine cases out of ten before May, and therefore he ought to be in an ample position to pay. There is no question of it.

3780. In your experience as a hop grower, is that the case?—Yes; I think, in nine cases out of ten, they do sell their hops six months before the day of duty.

3781. Supposing, from the state of the market, or from any other cause, the farmer does not sell his hops, would not he require an amount of capital to meet the duty?—Yes.

S. L. Lucas, Esq.

2 July 1857.

3782. And the heavier the amount of duty, the greater would be the amount of capital that he would require?—Yes.

3783. Would not the Weald of Kent grower, who pays the greater amount of duty, require a greater amount of capital?—Looking upon it in that light, unquestionably.

3784. Therefore, to that extent, is not that want of capital to which you attribute the distress in the Weald of Kent in some degree caused by the duty?—That is to say, that the duty being an item of the expense, if the duty is heavier per acre than it is with us, it is of course a heavier item per acre, and therefore it requires more capital; but I do not believe that his land does require more capital, because, though in exceptional cases it may happen that a man may not have sold his hops, yet such a man is quite certain to be a speculative, and not a purely legitimate hop grower. If a man is legitimately growing his hops, and selling them whenever they come to be picked, it follows that almost always, or in nine cases out of ten, he receives the amount of the duty before he pays it, and therefore he does not require additional capital; if he has not sold his hops, of course he requires additional capital.

3785. Is not a legitimate hop grower, as you call him, one who has the amount of capital per acre you speak of, and is cultivating hops on any of those soils suitable for the growing of hops?—That is certainly my meaning. The legitimate hop grower is a man who possesses a certain amount of capital, either in labour or in money, or in some shape. I believe him to be a legitimate hop grower, let his position be what it may; but at the same time, he is in a more favourable position if he grows hops on some soils.

3786. Mr. *B. Blakemore.*] Do you know the amount of duty now in arrear?—I do not; but in our district I have heard of nobody who was not ready to pay the duty when the duty was postponed the other day.

3787. Are you of opinion that it would be politic in the Government if they were to defer the collection from November to the March following?—I think it would be politic in the Government to give up to the hop growers half a year's duty, and to say that they will make them pay up next year; I believe in a series of years it would pay, because the Chancellor of the Exchequer, upon an average of years has lent the planters 250,000*l.* to cultivate their ground with; if he takes off that amount it is the same.

3788. Mr. *Knight.*] Do you think that the long-credit system invites speculation, and is therefore injurious?—Unquestionably.

3789. Mr. *Beach.*] What effect has that upon the tradespeople in the district?—It has this effect: that if the hop planter is unfortunate enough to break, he breaks in October or November, when the crop comes on; he goes on till his crop is ready, to try if he can make up matters; but he owes the Government three half-year's hop duty, and he will owe a whole year's rent, for he will probably ask his landlord to tick him, and so go on for half a year; that would swallow so much of his capital, that he would have nothing at all for the tradespeople, which I believe has a very bad effect upon the trade. A few instances have come to my knowledge in which the effect has been very bad.

3790. Sir *John Shelley.*] Notwithstanding all those objections to the working of the hop duty, do you still consider it is a positive benefit to the hop grower?—I did not state these objections to the existence of the duty, but merely to the working of the credit system.

3791. Do you think that making them pay up at shorter periods would be a benefit to the hop growers?—I think if the Chancellor of the Exchequer were to say, I will give you half a year's hop duty, and I shall expect you to cash up on the 1st March—I do not think it should be before the 1st of March,—they would be able to bear it, without its being injurious. I think it is more hearsay than anything practical, that it often induces people to sell when perhaps they ought to keep their hops longer.

3792. *Chairman.*] You would consider necessary an extension in all cases of six months from the time of the duty?—Of three or four months.

3793. Sir *John Shelley.*] Supposing an alteration were made with regard to the hop duty, what should you recommend as the next best course?—The next best course that I have heard of, would be a sort of graduated scale; the acreage duty seems to me to be so atrocious, that I cannot understand how any sensible man can advocate it; and I think that if there is any hardship, it is when a man grows the greatest crop of hops, and pays the heaviest duty, getting

getting the least profit; therefore, if there is to be an alteration, I should imagine the proper alteration would be, to make him pay less when he grows a great crop, and pay more when he grows a little one.

3794. Mr. *Bass.*] You spoke of the Excise duty being advantageous to the hop grower, because there is limited competition; may I take it for granted then that there would be more hops grown if there were no Excise duty?—I believe the average quantiy of hundredweights of hops that we require to use is under 400,000 cwts., and we grow about 8 cwt. an acre; therefore, if we have 50,000 acres, we have enough; if we have 57,000 acres, there would be 7,000 too many, and it would be a dead loss.

3795. Did not you say that it would be ruinous to the country if the cultivation of hops is diminished?—I say, in my particular district it would be ruinous.

3796. Has your particular district been affected by the fluctuation of the quantities grown in former years?—It is affected.

3797. Are you aware that in 1848 the acreage was reduced to 48,000?—I am aware that it has been on the average of some years, 47,000.

3798. Has not it been as low as 43,000?—Yes, and as high as 57,000.

3799. Has it been at any time injurious to the population?—It is injurious to the population; but there are very few people in Mid-Kent who have reduced their hop plantation; I am speaking of my own property; but pains have been taken to secure tenants of a good character, and they go on more steadily perhaps than the average of men. But I am inclined to think that the great fluctuations will be disadvantageous probably to the farmers and labourers.

3800. Is not yours a favoured district?—It is.

3801. Are there many parishes in Kent that have so large a portion of hop land as your parish?—I conceive that a good many parishes in my particular neighbourhood have as much. I think I may say that, if you take from Maidstone to Tonbridge, you will find most of the parishes possessing quite as many hops; they may have grubbed a portion in the Weald of Kent.

3802. I need not ask you whether you are much opposed to free trade in hops?—I conceive that free trade in hops would be better than an acreage duty, decidedly, and I conceive that it would be undoubtedly disadvantageous as to price, and I have no doubt that it would reduce the price; and that with regard to the lower districts, it would cause them to go out of cultivation, except as far as it paid to grow some years of hops, paying by the increase of the corn crop afterwards.

3803. Would not free trade greatly benefit the consumer?—It would benefit the consumer; but then, I think, it would be fair to observe that the amount of the benefit to the consumer can be but very small per annum, it would be exceedingly trifling. Supposing a man can put his hops into the copper for nothing; supposing he is a brewer of only ordinary beer, and not a brewer of beer for luxury and exportation, the price of hops, I conceive, is so small an item, that it inappreciably affects the price of beer.

3804. How much should you reckon the consumption of hops in ordinary beer, as compared to malt?—That is quite out of my province; I know nothing about it.

3805. It has been stated here that the average is about eight or 10 lbs. a quarter for ordinary beer?—I am inclined to think it is about nine lbs.

3806. Is not it the fact that in some years your tenants make as much as 4 *s.* a lb. for their hops?—That is 20 *l.* a cwt.; I think that 18 *l.* is the highest I have ever known a man to make. It would not affect the great mass of the consumers in the general consumption. I doubt very much whether the beer which contains eight lbs. of hops to a bushel of malt would ever be brewed with hops of a very high price; they would use low-priced hops.

3807. Do not you believe that the farmers average 1 *s.* a lb. in the average of years?—Yes, I do.

3808. Mr. *B. Blakemore.*] From 7½ lbs. of hops how many gallons of liquor are brewed?—I do not know.

3809. Mr. *Beach.*] Do you find that the number of acres under hop cultivation increases after a period of high prices?—No doubt they increase very rapidly; it mounts up 6,000 or 8,000 acres in the year.

Lunæ, 6° die Julii, 1857.

MEMBERS PRESENT.

Mr. Beach.	Mr. Dodson.
Mr. Bass.	Mr. Knight.
Mr. Brand.	Mr. John Locke.
Mr. B. Blakemore.	Mr. Wykeham Martin.
Sir Edward Dering.	

JOHN GEORGE DODSON, Esq., IN THE CHAIR.

Major *Edward Curteis*, called in; and Examined.

Major *E. Curteis.*

6 July 1857.

3810. *Chairman.*] ARE you an owner of hop land in Sussex?—Yes.

3811. In what part of Sussex?—In the Weald of Sussex, near Rye.

3812. How far is your land from Rye?—Close to Rye, adjoining the town of Rye.

3813. Do you consider that in the Weald of Sussex?—Yes.

3814. What sort of soil is yours?—Very good.

3815. Is it clay land?—Some clay, and some is good hill land.

3816. Is it not very flat land?—Some in the marsh is very flat, and on the hill, of course, it is not so.

3817. Do hops grow both upon the hill and upon the marsh land?—Yes.

3818. Are you a practical farmer yourself?—I grow hops myself.

3819. Sir *Edward Dering.*] How many years have you been a hop grower?—About 15 or 16 years; but I have known hops all my lifetime. My father had the largest hop growing estate in the county; and both in the Wealds of Kent and Sussex I have known hops.

3820. *Chairman.*] With respect to the sale of hops, do the hop growers, in many instances sell direct to the brewers?—In very few instances.

3821. How are hops generally sold?—They are sent to the factors in the Borough, and sold by them.

3822. Is not the factor the agent of the planter to sell them?—Yes.

3823. Is not he paid a commission on the hops he sells?—Yes.

3824. Has he a regular per centage?—Yes.

3825. What is that per centage?—Four shillings for a cwt. I think. If they exceed a certain price it is 5 *s.*, but 4 *s.* is the general commission.

3826. Would not 4 *s.* be the general commission for Sussex hops?—Four shillings would be the general commission for Sussex hops.

3827. What kind of hops do you grow?—Grapes and Jones's.

3828. You do not grow the Goldings?—No.

3829. Are there any country merchants who buy the hops?—Yes, but I believe they are all in league with the factors and merchants in the Borough.

3830. When the country merchant deals with the planter, does he buy the hops?—Yes.

3831. But the hops are generally sold through the agency of the factors, on the planter's account?—Yes.

3832. Sir *Edward Dering.*] The country merchant buys for himself, and the London merchant buys through the agency of factors?—Yes.

3833. Mr. *Brand.*] Does the 4 *s.* charged by the factor, include the charge for warehousing?—No.

3834. What is the charge for warehousing?—I think it is 1 *d.* per week per pocket, but I am not certain; I think that includes insurance. One pocket is about 1 ¾ cwt.

3835. *Chairman.*] If the planter does not send his hops to a factor to sell for him, where are the hops sent?—Very few planters in Sussex have the means of keeping

keeping hops; I have kept all mine, I am sorry to say; but very few farmers have the means of keeping their hops.

3836. Used not the country merchants in former times to do more business in the way of buying hops than they do now?—I think not; I think there is such a general dissatisfaction among planters with regard to the factors, that the country merchants buy to a greater extent now than they did. They are glad to save the commission and the other expenses to which they are put by the factor.

3837. What proportion of the hops in your neighbourhood are sold before Christmas, after the duty is charged?—I should think a great portion of them were sold before Christmas. I am afraid they are mortgaged before they are gathered.

3838. Is that in any way attributable to the duty?—I have no doubt about it.

3839. The first instalment of the duty is payable in May?—Yes.

3840. Is any great proportion of the hops sold as soon as they are picked?—A great many. I think a great many are sold to pay the expenses of the drying.

3841. When is the duty generally charged?—I should think the duty is known in November; it is not payable till May.

3842. And the last instalment of the former year's duty is payable in November?—I think so.

3843. Is not it the case, that a great portion of the crop is often sold as soon as it is picked, to meet the last instalment of duty due upon the former year?—Yes, partly for that object.

3844. Sir *Edward Dering.*] Did I rightly understand you to say that the country merchants buy more largely than they used to do?—I think so.

3845. And that that is owing to a distaste which the planters have taken to the factors?—Yes.

3846. Has there been any increase in the transactions that have taken place between the growers and the brewers direct?—I think not; I know that in 1854 I sent my man round to see what I could sell direct to the brewers, and I found it an utter impossibility.

3847. You found the brewers disinclined to buy of the planters?—Yes; I sent to country brewers.

3848. Can you account for that in any way?—I have been told that the factors and merchants give considerable credit, but whether it is so I cannot say.

3849. *Chairman.*] You say that a large proportion of the hops are sold before Christmas; is that equally the case both in high priced and low priced years?—I think more so in high priced than in low priced years. In a low priced year those that can hold them generally do.

3850. Till they are compelled to sell to pay the duty in May?—Yes.

3851. Is the effect of the duty very often to lower the prices?—Most assuredly. I have no doubt whatever that if the duty were taken off hops the producer would benefit to a very great extent, and the consumer also. The producer would obtain a much larger profit on his hops, and if the middleman was done away with the consumer would benefit also.

3852. Sir *Edward Dering.*] How would the middleman be done away with?—Because we should deal direct with the brewers. At present there are the factor, the merchant, the brewer or grower, and then the consumer; there are three or four men who make a profit out of it.

3853. Upon what principle do you think that the brewers would be more disposed to deal with you if the duty were taken off?—Because we should not be compelled to sell, and therefore they must come to us; we need not go to them.

3854. You said, just now, that the merchants were in the habit of giving long credit to the brewers; would not the same principle continue to operate?—I think not; for the farmers would not be obliged to sell.

3855. Might not the brewer still want credit?—Yes; but he must take the hops upon the terms of the producer; the producer may make his own terms.

3856. *Chairman.*] At the same time you think that the consumer will benefit likewise?—I am sure of it; but there are three or four persons who must get a profit before they go into the consumer's hands; that profit will be done away with.

3857. You think that the factor's commission is not the only expense incurred in the sale of hops?—Most assuredly not; if they had only their commission they would hardly be able to live?—If you take the average crop at 320,000 cwts.,

Major *E. Curteis.*

6 July 1857.

and put 4 *s.* per cwt. upon that, you will not find it a large living for 160 people.

3858. Mr. *Brand.*] Are there 160 persons hop factors in the Borough?—I think so. I sent for the Directory yesterday, and I take what I find in the Directory as my authority.

3859. Mr. *Bass.*] Does that include factors and merchants?—Factors, merchants, and country factors included. I sent for the Directory, and got it out of the Directory.

3860. Sir *Edward Dering.*] Does the middleman make a profit from both sides, from the brewer on the one side, and from the grower on the other?—The factor gets a commission.

3861. And he gets a profit from the price at which he sells to the brewer?—Yes. I wish the Committee to understand that the prices quoted are not the prices that go into the pockets of the planters; they are London prices.

3862. *Chairman.*] That is the price which the brewer pays?—It is the price which the consumer pays, not what the producer receives.

3863. Mr. *Bass.*] At present there is 18 *s.* duty to be paid; if you remove the duty, would not there be so much reduction in the price of the hops, and would it not be easier either for the producer to hold, or for the brewer to pay?—Yes, exactly.

3864. *Chairman.*] Of course, if the producer does not happen to be a man of capital, and if he does not sell his hops, he must borrow some money to meet the duty day?—Yes.

3865. Sir *Edward Dering.*] To whom does he generally have recourse?—To the factors; and then the factor obtains a lien upon the crop, and he insists upon the hops being sent to him. The broker in London is not allowed to sell and buy goods on his own account, and it is very extraordinary that the factor can buy and sell goods on his own account upon the other side of the water without something hanging to him.

3866. *Chairman.*] Will you explain what you mean by comparing the factor to the broker?—The brokers in London are not allowed to deal in the articles they sell for others; but I believe there are only two firms of factors in the Borough, who are not merchants also, who are buying and selling on their own account, being the owners of hops, and having persons about the country trying to sell them.

3867. Mr. *B. Blakemore.*] Are the factors and brokers the same people?—There are merchant and factors; but I believe there are only two firms in the Borough who do not sell hops themselves on their own account.

3868. *Chairman.*] They are hop merchants on their own account as well as agents for the planters?—Exactly.

3869. Mr. *Bass.*] With the exception of two firms?—With the exception of two firms, I believe.

3870. *Chairman.*] Did I rightly understand you to mean that when the factor gets a lien upon the planter's hops, he gets that hold over him that he can compel him to sell his hops at such times and at such prices as suits the factor?—I hardly know that I can say that he can compel them; but the general opinion is, that they do sell them in that way.

3871. Mr. *Bass.*] If they advance them money, must they not, to some extent, be in their power?—Yes; a factor told me last year that he had advanced money to two Kentish men, and that when their hops came to market he intended to take possession of them. I said, "You will break them up." He said, "I am afraid I shall." I think that those men have been broken up. I was not told the names of them.

3872. Mr. *B. Blakemore.*] Are you speaking of this dependence upon the factors as being the general condition of the planters in the Weald of Sussex?—I should say so, to a very large extent indeed.

3873. What proportion of the 320,000 cwts. a year would be grown by men in the state of dependence which you have described?—I believe there are hardly any planters who have not at some time or another been obliged to go to the factors for advances; of course there are some few exceptions.

3874. Do you think it is the general condition of the planters in the Weald of Sussex that their crop is mortgaged before it is gathered?—I do; not the whole of it, but a great proportion of it.

3875. Mr. *Bass.*] They have had money advanced to them?—They have had money advanced to them.

3876. Mr. *B. Blakemore.*] And among them a large portion of the crop is sold before it is picked?—It is not actually sold, but money is advanced upon it.

3877. You put the warehousing at 1 *d.* a pocket; for how long a time is that?—It is 1 *d.* a week; I think that that includes insurance.

3878. Do you know anything of the foreign hop trade?—I have been a good deal in Bavaria, but I have not been in Bavaria since 1839 or 1840.

3879. Do you know the number of acres in Bavaria under hop cultivation?—No.

3880. Did you inspect the hop gardens there?—Yes. I went into one; I forget the owner's name, but it was 14 acres, and it was round a hill, like a plantation of firs, and I spoke to him, and said, "What is the reason that you have hops in this way?" and he said, "We are sure to have a blight somewhere. If the blight be on the north side, I shall grow hops on the south; if the blight is on the west side, I shall have hops on the east." But that was a solitary instance, for the hop gardens in Bavaria are very small.

3881. How many acres did you go over?—I think 14, and I believe that he was the largest hop grower there.

3882. Did the climate and soil of Bavaria strike you as being as suitable for the growth of hops as the soil of our country?—I have no doubt they can grow hops in Bavaria. All my family have been engaged in hop growing in the county of Sussex, and I wrote back to them that I was sure they could not grow hops to any extent in Bavaria.

3883. Do they grow them to a considerable extent?—It is a mere nothing.

3884. Sir *Edward Dering.*] What do you think of their quality?—The quality, no doubt, is better than ours.

3885. Mr. *Bass.*] Do you mean better than any hops grown in England?—I was speaking of the Wealds of Sussex and Kent.

3886. Sir *Edward Dering.*] How are they as regards the best Weald of Kent hops?—They are equal to the best Kent hops.

3887. *Chairman.*] Did you make any inquiries as to their price?—I did, but I forget what it was.

3888. Did it strike you that there was a material difference between the price of hops in Bavaria and the price at which they could be grown in England?—I satisfied myself that they could not be imported at the time, whatever price we had, with any profit.

3889. Sir *Edward Dering.*] Was not the duty in 1840 about 8 *l.* a hundredweight?—Yes.

3890. Do you mean that they could not be imported while paying that duty?—I did not take the duty into consideration. £. 8. 10*s.* was quite a prohibitory duty.

3891. Do you mean to say that your impression was, that, supposing they had no Customs duty to pay, they could not be imported with a profit, so as to compete with the best sorts of English hops?—I think they would compete with us; but I have no doubt that we should beat them out of the market. I have not the slightest doubt that if the duty were taken off, the county of Sussex could grow the best hops that they have in the best parts of Kent.

3892. *Chairman.*] Do you think that if the duty were off, the quality of the hops in Sussex would improve?—Very much indeed.

3893. In what way would it improve?—There is a tenant upon an adjoining farm to mine who has been growing Golding's. He has only just commenced; and, in 1855, he grew 30 cwt. an acre, and he sold them at 90*s.*; and he sold his other Sussex hops at 68 *s.*

3894. Was that in the neighbourhood of Rye?—It was on an adjoining farm to mine.

3895. Upon what kind of land was it?—A good rocky soil, sandstone underneath, and a good soil above. I asked him, on Saturday, whether he thought the Golding's would increase. I found that he had sold all his sets, which shows that some one else is going to plant them; and I have not the slightest doubt that, i the duty was off, I should plant them. I have ground that would grow them.

3896. Mr. *Brand.*] Is not it an alluvial soil?—No; it is on a hill.

3897. Is it what is called Weald clay?—No; it is very suitable.

3898. *Chairman.*] What depth of soil have you above the sandstone rock?—I should think a foot, always.

Major *E. Curteis.*

6 July 1857.

3899. Is not that land that does not require draining?—It requires draining; but the soil has nothing to do with growing hops, it is solely the climate; and I believe that a much better description of hop is grown on the poor land than on the alluvial soil. We grow quantity, but we do not grow quality.

3900. Mr. *W. Martin.*] Is not yours a marsh land?—It is almost equal to Romney Marsh. We grow an immense quantity, but I think they are very inferior indeed.

3901. *Chairman.*] Will you continue the statement which you were making as to the increase of the better class of hops in Sussex, in the event of the duty being taken off?—In 1855 the farmer of whom I was speaking grew 22 cwt. of Grape hops against 30 cwt. of Golding's; the one he sold at 68 *s.*, the other at 90 *s.*

3902. Were they both good samples of their class?—No doubt they were. In 1856 he grew 18 cwt. of Grape hops, which he sold at 60 *s.*, and he grew 20 cwt. of Goldings, which he sold at 70 *s.*

3903. Sir *Edward Dering.*] Was that upon the same land?—It was upon the same land; and he has increased his plantation: but this year, I believe, they are completely blighted, and I do not suppose he will grow any.

3904. Are both the Grapes and the Golding's blighted?—No; of the Grapes he will grow a great many; so he told me on Saturday.

3905. Mr. *Brand.*] Is the cultivation of Goldings in this district confined to the instance you speak of?—I believe there are three or four; but the Golding is a more precarious kind than the Grape, and therefore we do not like growing them; but if the duty is taken off, I have not the slightest doubt that a great many persons will grow them, and I believe we shall beat the foreigner entirely in the course of years.

3906. *Chairman.*] In what way does the duty operate to restrict the growth of Goldings more than that of other hops?—It is so much more precarious; but this which I have mentioned is an extraordinary crop, and you cannot take it as any criterion of what we can grow elsewhere.

3907. Do you think it is in consequence of the duty that you do not grow them?—We do not grow them on that account.

3908. Are you acquainted with what is, more strictly speaking, the Weald of Sussex?—Yes, I know it very well indeed.

3909. Do you think that the Golding hop would grow there?—Yes; I know that a witness here, Mr. Tilden Smith, has a farm near Battle where he has hops, and he has grown Goldings.

3910. Do you know anyone else in the Weald of Kent who has grown them?—I think Mr. James Selmes has grown them.

3911. Is that Mr. Selmes of Northiam?—No, that is his father, who has just died.

3912. Where were those Golding's grown?—In the adjoining parish to Rye.

3913. Will you explain why the repeal of the duty should lead to an extensive cultivation of Golding hops?—Because they are higher priced hops; we should grow them just in the same way as we grow a much better description of wheat in Sussex than we used to do. We are forced to do it.

3914. Mr. *W. Martin.*] Do you think that competition with foreigners will compel you to grow a better class of hops, in order to supply the market?—Yes.

3915. Sir *Edward Dering.*] In those observations with regard to the duty, do you suppose that the present Customs duty will remain on, supposing the Excise duty is taken off?—I think it must come off.

3916. Do you think it would be advantageous to the planter if both the Excise and Customs duty were removed?—Very much indeed.

3917. You would not be afraid of competition with foreign hops?—No; I think that is a mistaken idea about taking off the Customs duty; it might admit foreign hops to compete with the very best Kent hops. But I do not believe that a single hundredweight would come in to compete with the Weald of Kent and Sussex hops, barring the Maidstone district. What the planters are so much afraid of is, not that foreign hops will come in, but that the English plantation will be very much increased.

3918. Do you know anything of the Belgian hops?—I have been in Belgium; but they are found in mere patches.

3919. Is not that the description of hop that would compete with the Sussex hop?—I think not; they are a very inferior hop indeed; but the demand abroad is just as limited as our demand here. It is a very limited demand.

3920. Supposing the duty were taken off, at what price do you think you could grow Sussex hops to advantage?—My man made out a statement of all my accounts about the hops; and it appears that, in 1855, my hops were sold at 2 *l.* 2 *s.* 9 *d.* a cwt.; and, if the duty was taken off, I should have a profit upon them. I have a table of the expenses which the hops cost for the last two years, taken out of my ledger. I desired him to do it as accurately as he could do it, so that it is as exactly done as possible.

3921. Have you made out the profit and loss upon the two years?—It is no profit; it is all loss.

3922. Upon what number of acres is that account based?—Fifty-five in 1855, and 59 in 1856.

3923. What are the results of the two years?—The expenses per acre in 1855 were 67 *l.*, and in 1856, 53 *l.*; and I sold my crop of 1855 for 2,413 *l.*, and my expenses were 3,373 *l.*; and my hops in 1856 were sold for 2,839 *l.*, and my expenses were 3,267 *l.*

3924. What balance does that show against you upon the two years?—£. 1,558.

3925. Will you hand that paper in to the Committee?—

[*The same was handed in, and is as follows:*]

Description of Expenses on Cultivation of Hops, Leasam Farm.	Number of Acres with Hops.	Weights of Hops.	Average weight per Acre.	Amount realised by Sale of Hops.	Average price per Cwt.	Yearly Expenditure.	Average Expenditure per Acre.	Average Expenditure per Cwt.
	a. r. p.	*cwt. qrs. lbs.*	*cwt. q. lbs.*	£. *s. d.*	£. *s. d.*	£. *s. d.*	£. *s. d.*	£. *s. d.*
Land, with hops 1855	53 3 14	1,133 3 23	21 0 0	2,455 – –	2 2 9	3,573 2 1	67 1 6	3 3 –
„ „ 1856	59 0 7	873 2 15	14 3 6	2,839 – –	3 5 –	3,167 1 4	53 13 7	3 13 –
	112 3 21	2,007 2 10	35 3 6	5,294 – –	5 7 9	6,740 3 5	120 15 1	6 16 –
Averages	56 1 7	1,003 3 5	17 3 17	2,647 – –	2 13 10	3,370 1 8	60 7 6	3 5 4

	Expenses on 53 *a.* 3 *r.* 14 *p.* 1855.	Expenses on 59 *a.* 0 *r.* 7 *p.* 1856.	Total Expenditure, Two Years.	Average Expenditure for One Year.	Average Expense per Cwt.	Average Expense per Acre.
	£. *s. d.*	£. *s. d.*	£. *s. d.*	£. *s. d.*	£. *s. d.*	£. *s. d.*
Labour	282 5 8	277 17 –	560 2 8	280 1 4	– 5 6	5 – –
„ Horses, shiming, &c.	45 10 6	66 2 –	111 12 6	55 16 3	– 1 3	1 – –
„ Picking and drying	805 17 6	558 17 10	1,364 15 4	682 7 8	– 13 7	12 3 8
Fuel and brimstone	97 5 6	79 11 –	176 16 6	88 8 3	– 1 9	1 11 7
Hop-pocketing	137 3 7	79 17 4	217 – 11	108 10 5	– 2 2	1 18 9
Manures	565 7 9	684 5 –	1,249 12 9	624 16 4	– 12 6	11 3 1
Hop-poles	420 10 –	361 10 –	782 – –	391 – –	– 7 9	6 19 8
Rent, rent-charge, and taxes	258 16 6	286 6 9	545 3 3	272 11 7	– 5 6	4 17 6
	2,612 17 –	2,394 6 11	5,007 3 11	2,503 11 10	2 10 –	44 14 3
Duty, as charged by Excise £.	960 5 1	772 14 5	1,732 19 6	866 9 9	– – –	15 9 5

3926. *Chairman.*] Do you think the effect of the duty is to restrict cultivation?—Yes.

3927. Mr. *J. Locke.*] You have given us the expenses of your production. Have you any idea of the cost of production of Bavarian and Belgian hops?—No. I do not know what it is. But, as I just stated, when I was there in 1840, my opinion was formed that they could not be imported to any extent.

3928. When you were there in 1840, did you go into any detail as to what their outlay was?—Only to a certain extent.

3929. To what extent?—To a sufficient extent to satisfy myself in writing to my father and other persons in Sussex and Kent, that the hops could not be imported then.

3930. Upon what data did you form that opinion?—I went into the hop gardens when I was last travelling in Bavaria.

3931. Do you know how they cultivate them?—Merely by seeing them, and asking about them.

3932. Do you know how many persons were employed in the course of picking?—No.

3933. Do you know what was the cost of manure, and what was the rent of their land?—No, I do not; I asked them at the time; and I must have known

Major *E. Curteis.*

6 July 1857.

them at the time, because I came to the conclusion that they could not be imported.

3934. *Chairman.*] Did you conclude, from the market price of hops there, that they could not be sold lower than hops in England?—Yes; that was so.

3935. Mr. *B. Blakemore.*] You stated just now, that the demand was limited?—Yes; that was in Bavaria.

3936. And in this country?—The demand here is limited.

3937. If the demand there is limited, would not that lead to an export to this country?—No.

3938. When you were in Bavaria, and when you made these remarks, did you satisfy yourself what were the quantities grown per acre in 1840?—I was almost always abroad myself, but being connected with the hop growing district I made these inquiries.

3939. Did you form any idea what would be the crop per acre of the Bavarian hops?—I think there were not more than three or four cwt. an acre.

3940. Mr. *Brand.*] Was there so great a difference as three or four cwt. in Bavaria, in 1855, as against 20 cwt. in England?—I have not the slightest doubt of that; there is that difference even in the same farm in England.

3941. Can you tell the Committee what you suppose to be the description of crop grown there?—It must be taken into calculation that the man said that part must always be blighted, and I should think that he would not get more than made that three or four cwt. an acre. But I have no doubt that with better farming they would get more.

3942. Do you think the crop in Bavaria would be as large as the crop in this country?—Most assuredly not.

3943. Are they as liable to blight in Bavaria as we are here?—I should think so, judging from what this man told me, certainly; for he said that he was sure of having blight somewhere.

3944. Mr. *Bass.*] When you spoke of the Sussex hops not being so liable to foreign competition as the hops of Mid and East Kent, were you aware that in the last half-year of 1856 there were only 21 cwt. of Belgian hops imported, while of Bavarian hops imported through Hanover and the Hanseatic Towns there were 4,500?—I know that to be the case.

3945. Will not that be in confirmation of your view?—No doubt whatever.

3946. *Chairman.*] With respect to the system of hop-growing in Bavaria generally, do they grow upon the system of farming expensively and getting heavy crops, or of laying out little capital and growing lightly?—My impression is, that they lay out very little capital indeed; but if they are to supply the English market, they must go into a considerable expense to do so. In 1854, when the Customs duty was suddenly reduced, there was a great importation of hops; and at that time I wrote to the Inland Revenue Office, telling them that to my knowledge a great quantity of foreign hops were imported that were taken into Kent, to be re-dried and re-packed; and I stated that there was a great deal of roguery going on. The answer I received from the Inland Revenue Office was, that they had no power to enter into the oasts; and I think that I, a second time, informed them that the same thing was doing in the Borough; but they did not go that day; and when they did go to the place which I indicated, the hops were removed.

3947. What was it that was going on?—The foreign hops were imported, and were sent to oasts in Kent, and dried. The information I received was, that they were mixed with English hops.

3948. Were they sold with the Kent mark upon them?—I do not know that; my impression is that they were sold as English hops.

3949. Mr. *Brand.*] Had those hops paid the Customs duty?—Yes; but still it was a gross imposition upon the English planters.

3950. Mr. *J. Locke.*] Do you know anything of this matter from your own knowledge?—I received information, and wrote to the Inland Revenue Office upon it.

3951. You do not know what the Inland Revenue Office did?—They said that they had no power of entry.

3952. Then the Crown did nothing?—The Crown did nothing. I forget whether I did, the second time, make application immediately to them upon the subject that other hops were being dried in the Borough, and that something was being done to the foreign hops; but I was informed that they went to the spot, and that the hops were all removed.

3953. But

3953. But there was no case made out?—There was no case made out.

3954. There was much accusation, but not much proof?—It was very suspicious that the hops were removed.

3955. When you say that they were removed, have you any proof that they were there?—I have no doubt that they were there.

3956. Have you any evidence of it?—None, except what the person told me; the man who told me saw them there himself.

3957. Who was he?—I can give the Committee the name. Fifty of the people in the Borough would tell you the same.

3958. Mr. *W. Martin.*] Do not the Bavarians grow hops for the Austrian market?—They have a great deal at Munich. I think that if there were a short crop of hops at Munich there would be a rebellion sooner than from political circumstances.

3959. Mr. *Brand.*] Have they oast houses in Bavaria?—No, they put their hops in pieces of cloth, and hang them up to dry. In the daytime they are carried out and put in the sun.

3960. Sir *Edward Dering.*] Have they no artificial heat?—None.

3961. They did not use charcoal?—None.

3962. Mr. *Brand.*] Are the hops properly dried under that system?—From what I have stated, I think that they could not be dried properly for the English market.

3963. Mr. *B. Blakemore.*] Is the climate dry or humid there?—Dry; it is the hottest place I ever was in.

3964. What is their hop-picking season?—I think June and July.

3965. Are you aware what are the facilities for bringing hops to this country, as to expense?—Just the same as any other thing; I should suppose they have rail-roads and steamers.

3966. *Chairman.*] Would they come by water carriage?—By water carriage from Hamburgh, or wherever they chose to go to.

3967. Mr. *B. Blakemore.*] You stated that if the duty were taken off, the parties who would benefit would be the producer and the consumer?—Yes.

3968. And that you were of opinion that getting rid of the middlemen, the factors and the grocers, would be a benefit, inasmuch as it would induce the producers to sell direct to the brewers; will you explain how that would be?—The producer would not be compelled to sell his hops, and therefore the producer must be sought by the brewer, and not the brewer by the producer.

3969. Does the producer, in selling his crop, add to the expense of cultivation the amount of duty which he pays?—I think not.

3970. Do you think that the duty is a complete sacrifice, and that he does not get it back?—I have not the slightest doubt that in 1855 and 1856 it was a complete sacrifice, and that no man in Sussex or the Weald of Kent got the duty back.

3971. To the extent of the hop duty, is not it a complete sacrifice, so far as the producer is concerned?—In 1855 and 1856 it was most assuredly.

3972. Would it be so generally?—In productive years it is generally a complete sacrifice. In such a year as 1854, those who were fortunate enough to grow hops did not care for the duty.

3973. Do you think that in the long run the hop grower does not get back the duty which he pays in the price for which he sells his hops?—I do not; but if you choose to take such a year as 1854, and put it against four or five years, you, of course, reduce the average very much indeed.

3974. *Chairman.*] Has not the average duty for the last 10 years been about 300,000 *l.* a year?—Yes.

3975. Do you think that the hop growers have got 3,000,000 *l.* more in the price of their hops than they would have done if there had been no duty?—I do not believe the duty raises the price.

3976. Mr. *J. Locke.*] In the year 1854, how much did you grow per acre?—Fourteen cwt. or fifteen cwt.

3977. Was not it a ton an acre?—Not all round; I grew a very large crop.

3978. And likewise in 1853, did not you grow a large crop?—I forget 1853; but I always grow large crops.

3979. Did not you grow over this in the two years 1853 and 1854?—Yes.

3980. Did not you refuse 20 *l.* a cwt.?—No, I did not; but my man was foolish enough not to take 18 *l.*

Major *E. Curteis.*

6 July 1857.

3981. Was not that because he wished to have 20 *l.*?—No; that was for 1854.

3982. How much did you get for your hops?—I had 50 acres of hops, and I sold them for 9,894 *l.*

3983. Would not that go against a good many bad years?—If you take that year with the last two years, it would make my gain 700 *l.* a year.

3984. *Chairman.*] Had you a large crop in 1854?—I had a large crop in 1854.

3985. Was not that an exceptional thing?—Yes; I was very fortunate indeed; I was almost the only person who was so. In 1854 I was just in the same position as I am at the present moment. In 1854 I went to a great extra expense; I thought I would force my hops through the blight, and I did so. At the present moment I am just in the same position as I was in the year 1854, and if I were guaranteed that the Customs duty would not be taken off, I should go to the expense of 400 *l.* or 500 *l.* at the present moment, and I have not the slightest doubt that I should have a large crop of hops.

3986. Mr. *B. Blakemore.*] Is not there a large consumption of hops in private houses for brewing?—Yes.

3987. Have you formed any opinion as to what is the consumption in private houses for brewing, throughout the country?—I cannot say.

3988. Is there much sold in this way, through grocers?—Yes.

3989. Could you get rid of the grocers?—No; we should not sell a few pounds of hops.

3990. Therefore, some hops must always go through the hands of grocers?—Yes.

3991. Do you think that you could manage to get rid of the factors who are the middlemen?—I have not the slightest doubt of it.

3992. Do you think that the duty being taken off would do that?—Not entirely; but to a certain extent.

3993. Do you think that the large brewers would go direct to the hop grower, and buy his hops?—There must be a merchant; I suppose that the brewers would have a man to buy for them.

3994. Supposing that you got rid of the duty entirely, what would that be to the man who drinks his quart of ale a day in the course of years?—I think that you would find the grocer would sell a pound of hops for 2 *s.* where now he gets 3 *s.*, but what that may be upon a barrel of beer I cannot tell.

3995. You have told us that you think the producer would save the entire duty?—Yes.

3996. Therefore do not you think it would clearly be an advantage to him?—Yes.

3997. Now take the case of the consumer; how would it benefit the consumer?—If the grocer sell at the present time a pound of hops at 3 *s.*, he would get them for 2 *s.* 6 *d.*

3998. Could you calculate what that would be upon a quart of beer?—No.

3999. You have said that you would get rid of the factors?—Yes.

4000. You recollect that there was a duty upon corn?—Yes.

4001. And that it was taken off?—Yes.

4002. Have you got rid of the corn factors?—Not as regards those who send to Mark-lane.

4003. Does not everybody send his hops to the Borough?—A great many do.

4004. Is not there a large body of factors at Mark-lane?—Yes.

4005. Then the repeal of the corn laws has not had the effect of getting rid of the cornfactors?—No; but I do not think that the cornfactors sell and buy corn.

4006. Since wheat is sold by the factors of Mark-lane, do not you think that you might take the duty off hops, and that hops might still be sold by the factors in the Borough?—No, I think not.

4007. What is the difference between hops and corn?—The hops must be had by the brewers, and if we are not compelled to go to the factors, the brewer will seek us.

4008. Is not the factor now used by the baker?—The baker goes to the miller, and the miller seeks the grower.

4009. Does not the miller seek the corn factor?—Not in the country markets.

4010. Does he not do so in London?—Yes; that is the exception.

4011. Are not the factors in the Borough, who are the factors of hops, the same as the factors in Mark-lane, who are the factors of corn?—I do not know that the Mark-lane factors are running about the country selling corn upon their own

own account, as the factors in the Borough do. The factors in the Borough sell hops on their own account.

4012. Do not some of the factors in Mark-lane do the same?—I do not know whether it is so or not.

4013. Do you know any of them at all?—No, I do not.

4014. *Chairman.*] Can you speak to the difference between the price which is paid in the Borough for hops, and the price which the planter gets?—No, I cannot.

4015. Have you ever sold your hops direct to the brewers?—No; I have tried to do so, but I have found they would not buy. They would rather buy of the merchants or the factors.

4016. To what do you attribute that?—I have been told that they have considerable credit given them.

4017. Is that credit given by the factors?—No; I should think probably by the merchants. I do not think that the factors give credit; but then the misfortune is that the factors are merchants; so that, in their character as merchants, they give credit.

4018. Sir *Edward Dering.*] If you could succeed in selling your hops direct to the brewers, and, next year, wished to sell them to the factors or the merchants, would not there be rather an indisposition, on the part of the factors or the merchants, to buy your produce?—We do not care about that.

4019. Supposing that you, or any planter, sold hops direct to the brewer, and that next year you wished to deal in the ordinary way with the factor or merchant, would not there be rather an indisposition on the part of the factor or merchant to buy of you, knowing that you had sold in a former year direct to the brewer?—I should think there would; but I have sold for the last two or three years independently of the factor.

4020. Is not there generally a strong feeling on the part of the factors that they would not buy the produce of a grower who had sold direct to a brewer?—I believe it is so.

4021. Do you think that the fact of the duty being abolished would do away with that system?—I do not think we should have the factors; I think that we should have hop fairs at Staplehurst and Ashford, and other places, and people coming to buy hops there, just as it is with corn or other produce.

4022. Why should they do that more than they do now?—Because we are compelled now to sell the hops to meet the duty.

4023. *Chairman.*] Is not the effect of the duty therefore to lower the prices?—The effect of the duty is to lower the prices. We send as many hops as we possibly can to market. The supply is greater than the demand. We all sell, and the factors and the merchants buy at their own prices.

4024. Mr. *Brand.*] Are not planters obliged so assign their hops to the factors now, in order that they may be warehoused?—I hardly understand why they should be obliged. We have no means of warehousing hops at present, or, at least, very few of us have; Sir E. Dering may have, and I have, but the planters, generally speaking, have not the means of warehousing.

4025. Have you not the means of storing in the oast house?—Yes.

4026. Supposing that the duty were repealed, would not they be obliged to send in the same way to the factors?—They would soon find the means of keeping them at home; they have no means on the farm of keeping them at home, but they would soon find means.

4027. Would not that involve the necessity of the landlord building expensive buildings for the purpose?—Yes.

4028. Would that not involve the necessity of the planters having a larger rental?—I am afraid it would.

4029. Supposing the duty of 2 *d.* a pound on hops wers taken off, do you think that a man with small capital would be able to take his hops into the market just when he pleased?—I think he would.

4030. Supposing he wanted money, whether there was a duty or whether there was not, would not he be obliged to sell his hops at a particular time?—Yes; but if there were no duty some of them would, and some would not.

4031. If that were so, would not the factor be still a necessary person?—I think not.

4032. Who would they have in his place?—The brewer.

Major *E. Curteis.*

6 July 1857.

4033. Do you think the brewer would advance money to the planters?—No; I do not think any money would be advanced at all. I think we should do away with that.

4034. Do you think that the planter would sell at once?—Yes.

4035. Would not that be an advantage to him?—I think it would be a very great advantage.

4036. Supposing that a needy man, who has a farm, and wants money to carry on his farm, or for any other purpose, and has hops that he is desirous to sell; do you think it is an advantage to him that he should have a forced market?—No; but then the duty forces the market.

4037. Supposing the duty is off, and there is a needy farmer wanting money, would he not sell his hops?—He would have a great many other things that he would be able to sell besides hops.

4038. Supposing that he had nothing else, what would he do?—He must have sheep and corn.

4039. If he sold his sheep, would it not be as bad as selling his hops?—We are obliged to do that, and that is what I complain of; the duty comes at the time of the spring fairs, and greatly injures them.

4040. *Chairman.*] So long as there is a duty, does not the needy man require not only money to carry on his farm, but additional money to pay the duty?—Yes.

4041. Mr. *John Locke.*] You have stated, that if the duty were taken off, the hop factors would be obliterated from the face of the earth?—Yes.

4042. If there is a needy man who has hops to dispose of, must he not still, although there be no duty, resort to the hop factor?—No; I think not.

4043. Why not?—Because he might not sell his hops; he might sell other things.

4044. Would not he damage himself if he sold hastily, and got hardly any money?—Yes, if he did so; but I cannot suppose such a case.

4045. Do not you see that when a person has capital, the person who has no capital always resorts to him for accommodation?—Yes; it is just the same as in the case of a man buying a farm and mortgaging it.

4046. Would not the same person resort to Mark-lane, although the corn duty is taken off?—I cannot say.

4047. Mr. *Blakemore.*] I think you have stated that the result of taking off the duty would be direct dealing between the hop growers and the brewers; that is to say, that the hop planters would take the hops to market and sell them in bulk; is not that so?—Yes.

4048. If a man is a brewer on his own account, would he be able to go to market and buy a pocket of hops; would you sell to the man who brews in this way, a pocket of hops?—No, certainly not.

4049. Can you, then, get rid of the grocer?—No, I should say not.

4050. Does the grocer who buys a pocket of hops, buy it from the factor?—No.

4051. Could he go to the planter and buy the quantity that he wants?—There is the planter, there is the factor, and there is the merchant; one of these men is superfluous.

4052. Which is superfluous, the merchant or the factor?—The factor.

4053. Does the factor buy from the producer?—The factor is supposed to act between the merchant and the producer; but unfortunately he has two characters, that of a factor and that of a merchant. I do not think this change will do away with the merchant; I believe that it will not; but it will do away with the factor.

4054. If a poor man, a labourer, or an artizan, should want to brew his own beer, how would it affect him?—The grocer has his pocket of hops from which to supply him.

4055. Do you think that the grocers in country villages are strong enough to buy a pocket of hops?—Yes; in every market town you will see a pocket standing at the door.

4056. Do you think that in the country villages they are strong enough to buy a pocket of hops?—I know that when I am in Lincolnshire I buy the hops for brewing; when I am at home I use my own hops; but when I am away, I am obliged to send to the grocers for so many pounds of hops.

4057. What harm is there in that?—None whatever.

4058. Are

4058. Are you for getting rid of that?—No; there is the hop grower and there is the factor; the factor sells to the merchant, and the merchant sells to the grocer. There are these four persons before the hops come to the consumer's hands.

4059. Which of those four would you knock off?—I would knock the factor off.

4060. Would that save to the consumer the amount of the duty upon hops?—I think it would; the hops would be sold at so much cheaper. I think the producer would get more money, and I think that the consumer would pay less for his three or four pounds of hops.

4061. Mr. *W. Martin.*] Do you think that the producer and the consumer would share the same benefit?—I do.

4062. *Chairman.*] And at all events, if the hop grower consigned his hops to any agent to sell, still that agent would not become, as he does now, the mortgagee of the hops?—He would not become the mortgagee of the hops.

4063. Mr. *Beach.*] Would not the factor always be necessary for the foreign hop growers to consign their hops to?—I think there would be very few foreign hops imported; next to none in a few years' time.

4064. *Chairman.*] Do not the factors make a deduction for loss of weight after the hops have been with them a certain time?—Yes.

4065. When is that deduction made?—I believe from the very first pocket that is sold. I have never been able to understand it. I only know that my hops always gain very considerably in weight at home, but that if they go through the factors, two out of three lose very much.

4066. Do you mean to say that if you keep them yourself they gain in weight?—I had some of my hops weighed on Saturday, and they had gained upon an average 8 lbs. or 9 lbs. a pocket.

4067. Had they gained that amount since last November?—They were 1855 hops; they had gained it since last November year.

4068. Do the Excise weigh accurately?—Very accurately. There is no complaint about the Excise; they do everything fairly.

4069. You do not find any inconvenience from their proceedings?—It is rather a nuisance not to be able to send our hops just at the moment we want them to go, but practically there is no inconvenience. I believe that very few planters take into consideration the expenses of the loss of weight, but the loss of weight is sometimes very considerable indeed.

4070. Mr. *Brand.*] Have you any account of the factors' charges in any transaction of your own?—The commission is 4*s.* a pocket.

4071. Do you mean to say that the other charges of the factor amount to more than 4*s.* a pocket?—No; but I think that if the factors took only the commission, they would all starve.

4072. Can you give the Committee the full expense of the factors' charges, over and above the sum which you have mentioned, of 4*s.* a pocket?—There is no other charge, except a 1*d.* a pocket a week for warehousing.

4073. *Chairman.*] Do you think that the charge is not enough to enable the factors to live?—I think not, if you take into account the number of them that there are.

4074–5. And that it follows that they must make a large profit in some way?—Yes; in some way or other.

4076. *Chairman.*] Do you wish to make any further statement to the Committee?—There is one thing I wish to speak to, which I know of myself; it is about marking. Being a soldier, I have been in a great many quarters, and in many instances I have seen the Sussex hops. I happen to know a farmer, from his being one of our own tenants, and I saw a pocket of his hops selling as Kent hops; so that the mark is not protection to the public against alteration.

4077. Sir *Edward Dering.*] Is there not a very heavy penalty against alteration?—Yes; but I saw a man's name on a pocket; it was Samuel Selmes, of Beckley, in Sussex; I went up to the dealer, and said, "Are these Kent hops,?" and he said "Oh yes, they are the finest Kent hops we have."

4078. Was there on the pocket originally "Sussex" and "Beckley"?—Yes.

4079. Did the seller represent that Beckley was in Kent?—The Sussex was cut out.

Major *E. Curteis.*

6 July 1857.

4080. Mr. *B. Blakemore.*] Was not that a fraud?—Yes; he was selling Sussex hops for Kent. The mark is no protection after the hops get into the grocer's hands.

4081. Sir *Edward Dering.*] Could not the man see that the name of the county where it was grown was cut out?—I think a great many Sussex hops are sold as Kent hops, when they are sold in half pockets.

4082. *Chairman.*] Do you think that the effect of the duty is to prevent small farmers from cultivating one or two acres of hops?—I do; I think it gets into the hands of men who have a certain amount of capital; I think it prevents also the poor land being cultivated for hops; I have no doubt that in Sussex, in the rapes of Hastings and Pevensey, there are very few acres of land that will not grow hops; but the expense of course would be much greater on poor land than on good land; but I believe from the climate, that they might grow any extent of hops.

4083. Mr. *B. Blakemore.*] Are they near the sea?—They must be sheltered from the wind; I do not think that those lands near the sea are so good as those away from the sea.

4084. *Chairman.*] With respect to the loss of the weight which the hops undergo in the factor's hands, have you known any case of it with regard to your hops?—I think that in 1853 or 1854 I kept all my hops, and I weighed them before I sent them away, and they had gained eight or nine lbs.; but by the factor's returns they had lost, or at least two-thirds of them.

4085. To what extent per pocket had they lost?—They had lost beyond the Excise weights; I should think three or four pounds per pocket.

4086. Is there a regular deduction for loss of weight?—Yes.

4087. How much is that?—I think two or three pounds.

4088. How long does that take place after the hops are sent from the factor?—I think immediately on their being sold; but I will not be very positive about that.

4089. Does it take place, no matter how long they have been there?—I do not know positively about that. It certainly takes place after Christmas, and I think before. I think the hops are all fresh weighed by the factors.

4090. Mr. *W. Martin.*] I am told that the reason for this deduction by the factors is, that a kind of crust forms at the top and the bottom of the pocket, which is unsaleable; is that the case?—I have been told the same; but I do not think that that is the case, unless they are badly kept.

4091. Mr. *B. Blakemore.*] Were your hops kept in a dry place?—Yes.

4092. They could not have imbibed any moisture?—I think not much. I suppose they must to a certain extent.

4093. Then would a crust form upon them?—No.

4094. Were the pockets properly dried, and properly kept free of moisture?—What I complain of is, the uncertainty that attends the duty; we have to pay sometimes, taking the duty at 1 *l.* a cwt., 20 *l.* an acre, and sometimes two; and I complain very much of the uncertainty of the time of payment. The other day I had notice from the exciseman that the duty was to be paid, and after I had sold my hops at a mere nominal price, the time was postponed. I consider that a great hardship upon all those who had prepared to pay the duty.

4095. *Chairman.*] We have been told by one witness that Mid-Kent hops are not generally sold so early as Sussex hops; does that agree with your experience?—I do not know anything about Mid-Kent hops, except that they pay much better than with us; I think that the expenses of cultivation are not so great; the ground is so much superior to ours, that it does not require so much cultivation.

4096. Have you any instance in your district of hops being left ungathered?—In 1855, at Wittersham, hops were left ungathered.

4097. Was that because they would not pay on account of the duty?—Yes. I ought to have left some myself ungathered, but I did not like to do so.

4098. Is not there a strong feeling among the planters in Sussex that the duty ought to have been taken off?—Yes; I attended a large meeting of hop farmers the other day, about three weeks ago, and there was an unanimous feeling that the whole duty should be taken off; I think there was not a person dissenting from it.

4099. Is not that the general feeling throughout the county of Sussex?—I should say so.

4100. Sir *Edward Dering.*] Are you speaking of both duties?—Yes. I have no doubt that they would prefer keeping the Customs duty on; but if they can get rid

rid of the Excise duty, they would rather have it, even if the Customs duty were taken off too.

4101. They would rather have that than remain as they are?—They would rather have that than remain as they are.

4102. Mr. *Beach.*] Does the system of giving long credit operate?—I think very readily. But I think you ought to take the other side of the question too, and I think that if the Government had not done so, it would have been an utter impossibility that they should ever have been paid. I think that if they had insisted upon having it paid in three months in the same year as the crop is grown they could not have got it; it would have been an utter impossibility.

4103. *Chairman.*] Do you think that the credit system carries great evils with it?—There is no doubt about it.

4104. Still you think that credit is necessary with the present rate of duty?—I would much rather myself have the duty collected in three months after it is charged.

4105. Do you think that the small farmers could pay the duty in that case?—No; but I am certain that if the duty were collected three months after it was charged it must be taken off.

4106. Because you think that it would be impossible to pay it?—It would be impossible to pay it, and it is only by a constant tinkering with the duty that the Government has been able to keep it on. There is the instance of Mr. Ellis; he was a very large hop grower; he could not pay the duty, and he went to Mr. Hodges, and requested him to see the Chancellor of the Exchequer, and to get the duty postponed for a year, which he did after a great deal of trouble; and Mr. Ellis was able afterwards to pay the duty, and went on; otherwise he would have been completely ruined. If you have these cases perpetually occurring, it shows that the duty must be a very bad duty for us.

4107. *Chairman.*] Is not it the case that in some instances a man is very successful in one particular year?—Yes; I suppose that you would call me very successful in 1854; but I have been very unsuccessful in 1855 and 1856.

4108. Mr. *Bass.*] Did not you get 20 *l.* a cwt. for your hops in 1854?—No; I only got 20 *l.* for a few tons.

4109. *Chairman.*] Is not it the fact that the only man who can make a good thing of it is the man who can afford to wait over three or four years till he gets a good year?—Exactly.

4110. If a man has not the capital, he must sell?—I think almost every man must sell sometimes, unless he has got private means; if he is a man of large capital of course he can keep his hops.

4111. Mr. *W. Martin.*] We have been told by some witnesses, that it is their opinion that if the whole growth of hops were one concern it would have been insolvent once in 10 years; is that your opinion?—I have not the slightest doubt of it.

4112. Do you think that the entire concern is carried on at a loss, but that the people speculate in it as a lottery?—Yes; in 1853 three or four men, just in my district, retrieved themselves from bad years.

4113. They had prizes in the lottery?—They had prizes in the lottery; just the same thing is occurring this year; I believe we shall be lucky again.

4114. Mr. *Bass.*] Is it true that Sussex is in a bad way?—Some parts of Sussex are, but not my district.

4115. What is the amount of your growth?—About 12 cwt. or 13 cwt.

4116. *Chairman.*] Do you think that if the cultivation of hops in the county of Surrey had for the last 10 years been carried on by a company, that company would have gained or lost?—They would have lost. When my father died he left a large estate; I made some calculations among the hop growers and the tenantry, and I have no doubt that the estate would have been worth a hundred thousand pounds more than it was, if there had not been any hops upon it.

4117. Mr. *Bass.*] Is the cultivation of hops increasing or diminishing in your district?—It is diminishing, but not to any great extent.

4118. Has it diminished within the last two years?—To a considerable extent. I am told that there were 3,000 acres grubbed in 1856; taking the whole country through, they are diminished.

Mr. *Henry Bannerman*, called in; and Examined.

Mr. *H. Bannerman.*

6 July 1857.

4119. Mr. *Wykeham Martin.*] YOU have been a Hop Planter for several years?—Yes.

4120. In what part of Kent?—At Hunton.

4121. That is a portion of the Weald of Kent, is not it?—It is a part of Mid-Kent; but it is upon the border of the Weald of Kent.

4122. Are your plantations below the hill of the Weald?—Upon the side of the hill, and below the hill.

4123. Is it not upon what is called the Ragstone Hills?—My best hops are grown there.

4124. Are your hops chiefly grown there?—Yes.

4125. Therefore they would be, strictly speaking, that what you would call Mid-Kent hops?—Yes.

4126. *Chairman.*] What kind of hops have you?—Chiefly Canterbury's, or Golding's, which are much the same sorts; the Canterbury hops and Golding hops are so much the same, that it is scarcely possible to tell the difference.

4127. How many acres of land have you under hop cultivation?—About 200 at present.

4128. What proportion does that bear to the best of the land you cultivate?—I have over 700 acres in my own hands.

4129. And 200 of them are under hops?—Yes.

4130. You say that you grow principally Golding hops?—Yes.

4131. Do you grow any other kinds?—Yes, a few Jones's and others.

4132. How many acres have you under Golding's?—I cannot answer that question exactly; but the greater proportion are Golding's.

4133. Are three-quarters of them so?—I should think so; perhaps not quite, because there are a good many Jones's now.

4134. Mr. *Wykeham Martin.*] Have you gone into the question of expense per acre at which you cultivate them?—Yes, I have.

4135. What is the cost of growing them up to the time at which you pick them?—From 26 *l.* to 27 *l.*

4136. What is the expense of picking them and managing them, and the duty?—£. 2 per cwt.

4137. Have you been successful yourself in the growth of hops?—No, not very much so; not more so than my neighbours.

4138. Are you of opinion, that upon the whole speculation it is a profitable speculation?—I think it must be, as there is a great quantity of capital invested in the business.

4139. Some of the witnesses have told us that they consider it is a lottery in which there have been a great many prizes and a great many blanks, and that men put in in the spirit of gambling; is that your opinion?—It may be the case, but I do not believe that that is the rule; considering that there are 50,000 acres in cultivation, which may be stated moderately as requiring a capital of five or six millions, that this capital should continue to be invested in hop growing without answering a good purpose I cannot believe.

4140. *Chairman.*] Do you grow hops in the Weald of Kent at all?—No.

4141. But speaking from your experience, hop growing has been a profitable pursuit?—Yes.

4142. Mr. *Bass.*] Are you speaking of your own experience?—I speak of my own experience and that of others one year with another; I see every evidence of hop growing answering a good purpose; I see no failures, and I see parties paying their way and employing labour satisfactorily, and, in fact, able for all they undertake.

4143. *Chairman.*] Do you think that it is as good a branch of farming as any other?—I think it is fully better.

4144. Mr. *W. Martin.*] Do you think that it is very beneficial to the labouring classes of the neighbourhood?—Decidedly; I think that in this way it has more advantage than in any other; it gives regular employment to a great number of labourers. Common farming work perhaps employs four or five labourers per acre, and hop growing employs 15 or 16.

4145. Sir *Edward Dering.*] Are not four times the number of people employed in hops as in arable land?—Yes.

4146. Mr. *W. Martin.*] Does not it also employ women and children a good deal?—It does.

4147. Then does not it make the property invested in underwood more profitable?—It does. My impression is that the labourers in the hop-growing districts are more constantly employed, and better paid for their labour, and better off altogether than any agricultural labourers in the country.

4148. Among other persons who would be seriously damaged if anything should discourage the growth of hops, do not you think that in this degree the labouring classes would be considerable sufferers?—Most certainly, to a very serious extent.

4149. If the labourers were thrown out of employment, would it not re-act upon the proprietors in the shape of increased poor-rates?—No doubt of it.

4150. Are you desirous of seeing any alteration introduced in the mode of paying the duty?—I do not see that it admits of any great improvement. I think that the principal evil is the long credit given to the hop grower. He is tempted to undertake more than his own available capital justifies, and is thus brought into difficulties at a time of pressure like the present.

4151. *Chairman.*] Have you instances of times of distress in your district?—Certainly. We have had one these last two years. The market price has been below the natural price.

4152. Mr. *Bass.*] What do you call the natural price?—The cost of producing the article, and a moderate profit upon it.

4153. Remembering that in 1855 you grew a larger crop than was ever grown before, do you think that that large crop sold at prices not natural prices, and that it was an unprofitable year?—It was to many.

4154. Did you get a crop in 1855?—I did.

4155. What is the price of labour per day in your district?—The price of labour per week at present is 13 *s.* 6 *d.*; but three-fourths of the labourers work by piecework, at which the labourers will make from 16 *s.* to 18 *s.* a week.

4156. Are you aware what price is remunerative in your high-priced county? I am not aware of it.

4157. Have not you spoken of the labour in the hop districts as being better than that in other counties?—It may be that the agricultural labourers in other parts of the country can get more than 14 *s.* or 16 *s.*, but I am not aware of it.

4158. How long have you been a hop grower?—Nine years.

4159. At the period when you came into possession of your present property, was the growth confined to Golding's?—Not altogether.

4160. What portion was there of them?—Three-fourths.

4161. Much the same as it is now?—Much the same as it is now.

4162. Have you increased or diminished the inferior hops?—I have increased the Jones's, but I have diminished the growth of Grapes, and have only now six acres of that sort.

4163. Do you grow an inferior crop to what you did formerly?—I am not aware of it; I keep up a large portion still of Golding's; I have diminished the quantity of Grapes, and increased the quantity of Jones's.

4164. Do you wish to convey to the Committee the idea that you are growing a larger portion of the finest quality of hops now than your ground ever grew before?—I am not prepared to speak exactly; it is thereabouts. The Jones's are increased considerably.

4165. Do the Jones's more resemble the Golding's or the Grapes?—They grow with me particularly well; many people think they are almost equal to Golding's grown on the side of the hill.

4166. In point of appearance or quality?—In point both of appearance and quality; they make a beautiful sample.

4167. Do you think the merchants would give as much for Jones's as for Golding's?—There is no objection made to them.

4168. *Chairman.*] When you sell your hops, do you sell the different kinds separately, or do you sell your crop as a whole?—Yes; they are all shown in samples together, and they are bought right out; an average price is obtained.

4169. Mr. *Bass.*] Do you distinguish the particular quantities of the different kinds of hops?—We state the quantity we have of Golding's, the quantity we have of Jones's, and the quantity of Grapes.

4170. Do you number them?—No; we merely make a statement to the purchaser.

Mr. *H. Bannerman.*

6 July 1857.

4171. Do you sell to the brewers direct?—No; we sell through the factors to the merchant.

4172. Mr. *Brand.*] Can you tell us the difference of price between the Golding's and the Jones's hops?—I cannot, because I sell the whole at an average price.

4173. *Chairman.*] Have you ever sold direct to the brewer?—Never.

4174. Have you ever sold direct to the merchant?—Never.

4175. Have you always sold through factors?—I have always sold through factors.

4176. Mr. *Bass.*] Are you not aware that there is a decided preference for Golding's over Jones's?—Certainly.

4177. Will you permit me to ask how the buyer can tell which are Golding's and which are Jones's, unless you distinguish them?—I suppose he exercises in business a good judgment, in confirmation of the statement that is made, that so many are Golding's, so many are Jones's, and so many Grapes; he judges of it from the sample alone.

4178. Does he draw samples from every pocket, to know which are Golding's, which Grapes, and which Jones's?—There is a sample taken from each pocket.

4179. Sir *Edward Dering.*] I suppose they tell him that there are so many pockets of Jones's, so many of Grapes, and so many of Golding's?—Yes, so many acres.

4180. Is not each of your pockets numbered?—Yes.

4181. When you draw those samples, do you tell the buyer that from No. 1 to No. 50 is of one description of article, from 50 to 60 is another description of article, and from 60 to 100 is another. Is that the manner in which you deal with your purchaser?—Not usually; the course pursued is, that if any purchaser inquires how many acres I have in Golding's, he is informed, and then I exhibit the samples and he judges of the article; he believes the statement made to him.

4182. Mr. *Bass.*] In point of fact, when your bulk goes in to the factors, do you make any distinction between Golding's, Grapes, and Jones's?—No.

4183. And you do not consider that calculated to prejudice the sale of your hops in the market?—It does not interfere with it, if I make a proper statement.

4184. Sir *Edward Dering.*] Do you pack them together, or pack them separately?—We sometimes do one and sometimes the other; but more frequently we keep them separate.

4185. *Chairman.*] Do I rightly understand you to say that you pack some Jones's and Golding's in the same pocket?—Sometimes. But I do not approve of it; it is not the proper way.

4186. What do you put the expenses of picking and drying at?—About 1 *l.* a cwt.

4187. Is there any difference in the expenses of picking between the different sorts of hops?—No; if the hops are easy to pick the price is lower; it is more favourable to the producer.

4188. Then the price is different in different years?—It is very different.

4189. But there is no difference in the expense of picking the different kinds kinds of hops?—No, they are all taken together. Sometimes there would be nine bushels for 1*s.*, and I have seen as low as two or three bushels to 1*s.*

4190. What does that depend upon?—The difficulty of getting the hops.

4191. Mr. *W. Martin.*] Where they grow thickly together it is easy to pick a great quantity?—Yes, where there are a great many hops and little bine.

4192. *Chairman.*] If you have a large crop, do not you sometimes find a difficulty in obtaining a supply of labour?—I really do not think there is much difficulty in that.

4193. Do you think that the long credit given for the duty is a temptation for people to plant more than their available means justify?—Yes.

4194. Is the effect of the duty afterwards to aggravate the distress of those very persons?—Certainly it is; it makes their engagements heavier than they are able to meet; all their engagements, of course, press upon them heavily.

4195. And they have that duty to pay by a certain day?—Quite so.

4196. Mr. *W. Martin.*] Does not the duty press the heaviest when the hops are the cheapest?—Yes.

4197. Mr. *Bass.*] Are you opposed to free trade in hops?—I am friendly to free trade, decidedly; but I think that the hop duty is to be viewed in connexion with the malt and beer duty; and that, viewed in that light, it is a right tax.

4198. You mean a discriminating tax of protection in favour of British hops?—I think

—I think that, seeing the demand for hops is limited by the quantity of malt consumed in making beer, it would not be fair to expose the hop grower to foreign competition, seeing that he has no expansion. Were there no malt duty, then there would be a larger market for the consumption of hops; but it is limited by the malt duty.

4199. Do you consider the malt duty a grievance to the hop grower?—No; I think the malt duty is a wise tax.

4200. Did not I understand you to say just now that it limited the market for hops?—Certainly; I think it does.

4201. Do you consider it an advantage to you, as a producer of hops, to have the consumption of them limited by a legislative measure?—Taking it altogether, I think the arrangement is good for the community at large, and gains a handsome sum to the revenue.

4202. I understood you to tell the Committee that you are in favour of the principles of free trade, but that, with regard to hops, you think there is an exception, which is justified by the fact of there being a malt duty; but I did not clearly understand why, from the fact of the grower of barley having to pay the malt duty, he should also have to pay for protection to the grower of hops?—I am not aware that the grower of barley pays the malt duty.

4203. Does not he pay it if he malts?—The duty is finally paid by the consumer, not by the producer.

4204. Do you think that the hop duty is finally paid by the consumer?—Decidedly.

4205. *Chairman.*] Is that your experience?—I think it is, and it is a truth of political economy.

4206. Have you found that your own experience has carried that out?—Quite so.

4207. Mr. *Bass.*] Why should the fact of there being a malt duty make it necessary that there should be a protection upon the growth of English hops?—I hold that the malt duty naturally limits the consumption of hops.

4208. Is that a good or an evil?—Taking it altogether, it is a good for the country at large.

4209. Do you think it is good to limit the growth of a necessary article of consumption?—We must have revenue from some source or another; a duty upon malt and hops is as fair a way of getting revenue as can be devised, because it is a tax upon a luxury of life, which no one pays except he chooses to pay it.

4210. Was not that the case with the taxes on sugar and tea, and other articles that are called luxuries?—They are necessaries of life.

4211. Is wine a luxury?—Wine is a luxury of life.

4212. Is it good to have a duty upon wine?—It is good to have such a duty upon wine as will bring in a large revenue without injuring the article.

4213. Do you consider that such articles as tea and coffee are necessaries?—They are such articles that we could not do without.

4214. Do you consider that a labouring man would consider tea a greater necessary of life than a pot of beer?—Many would; but I take the same view that we find taken in the "Wealth of Nations," by Adam Smith; he makes a distinction between the necessaries of life and the luxuries of life, and he holds that taxes upon necessaries are an evil; but taxes upon luxuries are beneficial.

4215. Mr. *J. Locke.*] Does he say anything about beer?—He does.

4216. What does he think of beer?—He calls it a luxury.

4217. What does he confine the term "necessaries" to?—Things you cannot do without; such as bread and clothing.

4218. Mr. *Bass.*] Does he call tea and sugar necessaries?—He does not specify them; but I have no doubt that he would call sugar a necessary of life.

4219. Do you speak advisedly when you say that you do not regard beer as a necessary of life to labourers?—Certainly; I have the authority of Adam Smith, for he specifies that.

4220. I understand that you consider the tax good, and you defend it because it produces revenue; is not that so?—Yes.

4221. If there were no protection, would there be less of revenue?—It would not be fair to tax the home produce, and to bring foreign produce into competition with it.

4222. Mr. *Knight.*] Did I rightly understand you to say that the great difference between other commodities and hops is, that there is a limited quantity of

Mr. *H. Bannerman.*

6 July 1857.

hops brought into use in England, and that the barley is almost unlimited? —Quite so.

4223. When I call your attention to the fact that there have been 6,000,000 of bushels more used last year than there were the year before, can you tell me in what sense the consumption of malt is limited?—I think were there no malt duty, there would be a greater quantity used in making beer.

4224. Would not that be the case with the hop duty too?—I admit that is the case; the consumption of hops would increase in proportion, no doubt.

4225. Is not it the case that while you frequently grow more hops than is necessary for consumption, the farmer never grows more barley than the country can consume?—I should think so.

4226. Mr. *Bass.*] Is not it true that the farmers grew as much barley as we could consume till we got free trade?—Yes, perhaps so.

4227. Is not it the fact that for many years we never imported a bushel of barley?—I believe so.

4228. Might not it follow that if we had free trade in hops we might have a supply of hops?—Barley is an article of food, of exchangeable value in any quantity, but hops are an article that are used merely for the purpose of brewing beer. If they are in excess of the quantity wanted for beer they are no use, they are not food fit for pigs; they are of no exchangeable value; and, therefore, if the supply of hops be in excess of the consumption, the market price must be a losing price; and in consequence of the perpetual glut of hops, the effect of admitting foreign hops, in my humble opinion, would be to diminish the English plantations, and to throw the labouring classes out of work, to endanger the fixed capitals at present invested in the production of hops, to involve a serious loss to the revenue, and to benefit no one whatever except a few large brewers.

4229. Did not you say that the incidence of the duty was upon the consumer? —Certainly.

4230. What has the brewer to do with it if the duty is paid by the consumer? —Because it is well known that hops are so small an item in the cost of beer, that the price of beer does not rise or fall with the price of hops.

4231 Do you admit that the consumer does pay the duty?—Virtually he does. With all the luxuries of life, it is the fact that the duty is paid by the consumer. It is specified by Adam Smith as a fact that the consumer of beer pays the duty upon hops.

4232. Have you any doubt, as a gentleman who has studied Adam Smith, that, in the long run, the consumer will have the benefit of any reduction of the impost upon hops or barley, or any other article?—He would in a small degree upon hops, but it would enter so little into a pot of beer that it would be imperceptible.

4233. *Chairman.*] Do not you think that, if hops were cheaper, in the long run, some brewers would set up who would sell the beer so much more cheaply that the consumer would get the benefit of it?—I think the person who drinks 365 quarts of beer a year does not pay above 1*s.* duty, which is not very material.

4234. He does pay it?—It naturally falls upon him, no doubt.

4235. Mr. *Bass.*] The question is as to a revenue of 400,000 *l.* a year; are you prepared to say to the Committee that, in your opinion, if it were removed to-morrow, the brewers would put it all into their pocket, habitually and permanently?—They would get part of it; it must affect the cost of beer; it would cheapen it to some small extent.

4236. Is that according to the doctrine of Adam Smith?—Yes.

4237. Is not it the case that if you were to remove this duty of 400,000 *l.* a year, and if it were put into the pockets of the manufacturers, competition would not have the same effect in that trade as it has in others?—It would to some extent benefit the consumers, but not to a great extent.

4238. In your judgment, as a political economist, if the duty of 400,000 *l.* were removed to-morrow, would not the public derive a certain share in that reduction? —I think not for a long while.

4239. *Chairman.*] Will they in the long run?—The truth is, that the duty finally falls upon the consumer as respects hops and everything else.

4240. Sir *Edward Dering.*] The regular consumer, according to your idea, will benefit to the extent of about 1 *s.* a year?—Quite so.

4241. *Chairman.*] Did you not tell us that there were years when the produce was in excess of the demand?—Yes.

4242. Were

4242. Were these years times of distress in the hop-growing district?—To some extent.

4243. In some districts much more so than in others?—Yes; naturally and necessarily so.

4244. In which districts would the distress be greatest?—In soils and climates the least favourable for the production of hops.

4245. In those years, does not the duty aggravate the distress?—If they plant more than their available capital justifies they will be involved in difficulty. If any man does not undertake more than his capital justifies he gets over it well enough, because he makes preparation for all his engagements.

4246. May not the man with a large capital pull through?—If a man have capital in proportion to his plantation, and has not parted with it, he will be able to meet his engagements.

4247. Including the duty?—Including the duty.

4248. What amount of capital do you think a man ought to have to an acre of hops, when he undertakes the cultivation of them?—I think 40 *l.* or 50 *l.* floating capital, besides his fixed capital in oast-houses, storeages, hoppers' cottages, and other things.

4249. Do you think that the fixed capital amounts to 50 *l.* more?—I think so. My estimate is, that, taking the 50,000 acres of hops in England, there must be from five to six millions of capital invested in the cultivation of hops. It has been stated, I believe, in evidence to-day, that hop growing, upon the whole, if it were in the hands of one company, would lead to the ruin of that company; but, for my part, I could as soon believe that the Thames flows from the sea.

4250. *Chairman.*] Was not that statement made with regard to a particular county?—I have heard it stated in reference to the whole country. That five or six millions of capital can continue to be invested in hop-growing, without affording a reasonable profit, is incredible; capital, if it does not answer a purpose, takes wings and flies away.

4251. Mr. *Bass.*] I have a statement here, presented to me by two of the best known merchants in the Borough, of the prices at which hops have been sold in the Borough for the last 10 years, which, after the reduction of 2 *l.* a hundredweight for the expenses of duty, picking, and selling the hops has been made, shows what the net produce per acre has been, on an average of the last 10 years; I understood you to say just now, that your expenses of cultivation were 27 *l.* or 28 *l.* an acre?—£. 27, I think, up to the time of picking.

4252. Are you able to give me an opinion as to what would be the average of expense of cultivation in England?—I should not think it would much differ from that. In Sussex and the Weald of Kent, where the hops are much shorter, the expenses would be lower than with us considerably.

4253. If this account, which I have referred to, coming from two of the most respectable houses in the Borough, one being Messrs. Wigan & Company, shows that, on the average of 10 years, the prices in the Borough are about 25 *l.* 15 *s.* 4 *d.*, which is 2 *l.* a hundredweight below what you conceive to be the cost of cultivation; would not you say that could not be true?—It is a surprising statement.

4254. Something was said about hop-growing being at a loss, and you said in answer, that of course the gross results must govern all such enterprises. Was that so?—Yes. You must judge of the aggregate of a series of years.

4255. Do you imagine that, upon any series of years, the speculators in lotteries make a profitable investment?—No.

4256. May not it be the same in hop-growing, that people engage in it as a lottery, hoping that they may have a favoured year?—They may, but it is very foolish.

4257. Does not that account, supposing that so respectable a house as Messrs. Wigan deliver it as an authentic account, savour of the truth of such a proposition to a certain extent?—I am not prepared to authenticate that account; but I have no doubt that it is a correct statement from the books.

4258. Do you think it is probable that that is a true calculation?—I do not suppose that it is very far off.

4259. Did I rightly understand you to say that you require 28 *l.* to pay the expenses of cultivation?—Where I grow hops is a very expensive place. The Golding hops require 16 or 18 feet poles, which are much more expensive on the average than the 12 feet poles which are used in Sussex.

Mr. *H. Bannerman.*

6 July 1857.

4260. Did not you say that you did not think that the average cultivation could be under 28 *l.* an acre?—I said 26 *l.* or 27 *l.*

4261. *Chairman.*] Does your land require draining?—Part of it does.

4262. Does the land upon which you grow hops require draining?—The best land for growing hops does not require draining; it is self-drained.

4263. Mr. *Martin.*] Have you any means of knowing what other people spend in cultivation?—None at all.

2464. You merely speak from your own opinion?—Quite so.

4265. If you heard that in the Wealds of Kent and Sussex 22 *l.* an acre was a fair cost, have you any reason to doubt it?—I should say it is very likely to be so.

4266. *Chairman.*] Are you acquainted with East Kent at all?—Very little; I should think the cost there is much about the same as with me.

4267. We have been told that the expense in East Kent is 36 *l.* an acre; do you think that that is correct?—That is a high estimate.

4268. Sir *Edward Dering.*] Do you include any allowance for rent in your calculation?—Yes.

4269. And for rates?—Yes.

4270. And for interest of capital?—Yes.

4271. And for interest upon capital laid out upon buildings?—Not upon building capital.

4272. Not fixed capital?—No.

4273. The interest upon fixed capital you would include in the rent?—Quite so.

4274. *Chairman.*] What is the rent of land in your district?—The best land is worth 3 *l.*, or 4 *l.*, or 5 *l.* an acre.

4275. What is the extraordinary tithe upon that land?—Fifteen shillings upon the whole of our parish.

4276. With regard to the manner in which your hops are sent to market, when you send Jones's, and Goldings, and Grapes altogether, do you distinguish the Goldings from the Grapes, and the Jones's from both of them, by marks upon the pockets?—No, we do not.

4277. Do you distinguish them by numbers?—No, we do not; but I think it is a good plan to distinguish them, and I think it will be done in future.

4278. Mr. *Brand.*] Are you a grower of the three descriptions of hops; the Goldings, the Grapes, and the Jones's?—Yes, but very few Grapes; I grow Goldings and Jones's principally.

4279. Do not the Grape hops and the Jones's hops produce much greater bulk than the Goldings?—Yes, they do; they are better croppers, and they are not so liable to disease.

4280. Can you inform the Committee of the relative weights per acre grown this year?—I cannot exactly; but upon the average I should say the Grape hops grew 4 cwt. or 5 cwt. an acre more than the Goldings, and the Jones's perhaps 3 cwt.; the Jones's is not a heavy hop; it does not weigh heavy.

4281. Then the duty falls more heavily upon the Grape and Jones's hop, than it does upon the Goldings?—I do not think the duty falls upon any of them.

4282. You think it falls upon the consumer?—Certainly, I am satisfied of that.

4283. *Chairman.*] Should you like to have the Excise duty taken off?—I think it would answer no good purpose; it would involve a serious loss to the revenue; it would not benefit the planters; it would not benefit the labourers; and I do not see that it would answer any good purpose whatever. The planter, I am satisfied, does not pay it. The profits of hop-growing are not in the slightest degree affected by the duty; that is in accordance with the views taken by the most enlightened writers on economical science.

4284. In the years which produce the greatest Excise duty, is not the duty paid out of the producer's pocket?—We must take a series of years. To take a particular year or years, is to draw a general conclusion from a single instance. I say that on a series of years there must be general profit, or the planters would give up the business.

4285. Do not you think that in years when the produce is in excess, the Excise duty is an injury?—All the cost is a serious thing, because he does not get it it back.

4286. Is not the Excise duty an item in his cost?—Yes.

4287. Does

4287. Does the injury to him in one year exceed the benefit to him in another year?—He gets back the duty in the enhanced price of his produce, with an additional profit for advancing it.

4288. Does that make up for the loss of the years before?—It does in the long run, otherwise he would give up his business; no business is continued unless it pays.

4289. Do you think that if the planter loses by the Excise duty in one year, he in another year gains just as much by it, so that he is not a loser?—He gains so much, that upon the average he finds it a paying busines, otherwise he would not continue it.

4290. Has that been the result of your experience?—Quite so, and of my observation.

4291. Mr. *Brand.*] You stated just now, in comparing the relative weights of the different hops on your farm, that in some years you grew three or four cwt. an acre more of Goldings and of Grapes than of Jones's?—Yes, four cwt. of the Grapes, and three cwt. of the Jones's.

4292. Therefore does an acre growing these quantities of hops pay more duty than an acre that grows Goldings?—Yes.

4293. *Chairman.*] Do you think that if the Excise duty were taken off, there would be more hops grown?—I think not.

4294. You do not think that many planters would be encouraged to plant hops if there were no Excise duty?—They might; the cottagers might plant them in gardens, and so on, but it would turn out in the long run that the quantity of hops must meet the consumption; if the supply be in excess, it is a losing business; if it falls short, there is a good profit.

4295. Do you think that if there were no Excise duty, there might be some increase of small growers?—Yes; but it would all come to the supply having to meet the consumption.

4296. Do you think that the effect of the duty is now rather to keep the hops in the hands of large cultivators?—It has the effect of preventing a glut of hops.

4297. Do you believe that if there were no Excise duty the cultivation would not extend?—I think it would be extended in the first instance, but it would find its level. If there were more hops grown than the demand, it would not pay.

4298. Do you think that cottagers and small farmers who do not grow hops would grow them under those circumstances?—They might do that, but it would, like any other business, find its level.

4299. Would not the small grower be able to grow as well as the large grower?—To a small extent, so long as he found the price to answer.

4300. Is not the effect of the duty now rather to restrict the cultivation to the large farmers?—I do not see it. We see that when the market price of hops is above the natural price, the acreage extends immediately. In my experience, it has extended 10,000 acres, owing to the market price being above the natural price, and owing to its being a profitable investment. For the last two years there is a glut, and now the acreage is decreasing.

4301. You say that the duty acts to prevent a glut in the market?—It acts in keeping the supply proportionate to the consumption.

4302. In what way does it do that?—By putting people on their guard not to plant more than they will be able to meet their engagements for.

4303. Then it is a restriction upon cultivation?—There is no doubt of it.

4304. Sir *Edward Dering.*] It regulates the supply in the market?—It does.

4305. It regulates it, but does not it also restrict it?—It restricts it to a certain extent, but it tends greatly to regulate it, which is a beneficial tendency.

4306. How is that?—If I engaged in the business of a farm, and I had those engagements to meet, I should not go hap-hazard to work. It is a great evil for people to engage in business who are not able for it. People plant more than they ought to plant, and that causes the present distress.

4307. Mr. *W. Martin.*] In fact, it makes you a little more cautious than you would otherwise be?—Quite so.

4308. *Chairman.*] Does not that arise from the increased expense of growing hops?—In the first instance they require more capital, and that tends to regulate the proportion between the supply and the demand.

4309. Mr. *Knight.*] Have you made any inquiries as to the price at which foreign hops can be imported into England?—I cannot speak positively to that; but

Mr. *H. Bannerman.*

6 July 1857.

but I have seen Bavarian hops, that were equal in quality to any hops that I can grow, and I am supposed to be able to grow as good a sample as most.

4310. Do not you think that there is no doubt that in those remunerative years in which you make up for the loss of bad years, those hops will come in, so as to take off all your remuneration?—I think that would be the effect to a certain extent.

4311. *Chairman.*] Do you think that the price of hops would be lower?—Yes, I think it would.

4312. Will not the consumer get the hops cheaper?—To a certain extent.

4313. Has this year been a year of distress, even in your districts?—Certainly; last year has been a year of great distress; the price of hops has been below what I would call the natural price.

4314. Have not there been petitions from your district to the Chancellor of the Exchequer for a remission of the duty?—Never, I think. I am not aware that there has been any deputations to the Chancellor of the Exchequer from Mid-Kent.

4315. Not within the years that you have been a hop grower?—No; at least, if there were, I have not given in my adhesion to it. I cannot think it is a case for signing a petition.

4316. Were not the years 1848 and 1849 years of great distress?—That was before I began hop-growing; I began in 1848.

4317. In the time you have been a hop grower there has not been any general distress in your district?—Not till these last two years, when we have had the heaviest hop crop that ever was grown, which has caused the distress in the market.

4318. Have there been any complaints of the amount of duty paid in these two years?—None in my neighbourhood.

4319. Are the planters in your neighbourhood so well off, that they can afford to bear a loss?—No; but I hope that many of them are sufficiently enlightened to know that they do not pay the duty, but that it is finally paid by the consumer.

4320. When there is a surplus of hops who pays the duty?—That is only in exceptional years. We must take a series of years. I think the average is that there is a gain, and that the duty is got back upon the long run.

4321. Mr. *Beach.*] Are the planters in your part of the country generally men of capital?—I think they are; there is every indication of it; in fact, I would say from a pretty extensive observation of the investments of capital in other parts of the country, and in other kinds of labour, that as respects the employing of capital in agriculture, it is a more remunerating business, taking not my own case, but that of the planters generally over the whole district, than any other employment of capital in farming.

4322. Sir *Edward Dering.*] Do you think the practice of marking the pockets a desirable thing?—I think it is exceedingly fair for all sides.

4323. Do you think it would be desirable if the marking were left off?—I think it would lead to a great deal of attempts at deception, which are obviated now.

4324. Do you think it is a protection to the purchaser of hops?—It is, I think, decidedly advantageous both to the buyer and the seller.

4325. *Chairman.*] Do you think that it would be so in other things also?—I believe it would; but hops are an article in which the value depends very much upon the name; it is everything for the buyers to know where they are grown.

4326. Is it of more consequence in the case of hops than in the case of any other produce?—I believe it is. It is very difficult to judge of hops as compared with wheat and barley from the mere looking at the sample. The buyer is governed a good deal in the price which he gives by his knowledge of the mark, knowing how the produce answered in previous years.

4327. Does not the man who buys wine and beer buy it much in the same way?—No doubt he does.

4328. Is it found necessary to put a Government mark either on wine or beer?—No; but I suppose that the purchaser of wine would like well to know when he purchases where the wine came from.

4329. Sir *Edward Dering.*] Do not particular vineyards bear a better price than others?—Yes.

4330. Mr.

4330. Mr. *W. Martin.*] Can you see the maker's name on the bottles of ale? —Just so; it is satisfactory to both sides. Mr. *H. Bannerman.*

4331. *Chairman.*] Is any Act of Parliament found necessary requiring the name to be put upon beer?—No. 6 July 1857.

4332. Are not the cases much alike?—They are similar.

4333. If it is necessary in the one case, is it not equally necessary in the other? —I think, upon the whole, it is satisfactory for all sides.

4334. Mr. *W. Martin.*] Have you any other statement that you wish to make to the Committee, that has not been drawn out by the questions that have been put to you?—I should just like to re-state, that the chief point appears to me to hinge upon this, whether or not the grower pays the duty. If the grower pays the duty, then there is good ground for the complaints made by the planters in Sussex and in the Weald of Kent; but if the duty is finally paid by the consumer, there is not one of the growers in Sussex, or of the growers in the Weald of Kent, who has any just ground of complaint whatever, and the removal of the duty would not benefit him one whit. If he now cannot compete with the home grower, the difficulties of his situation would be much worse if, in addition to this competition, he had the competition of the foreign grower.

4335. *Chairman.*] You are not a grower in the Wealds?—No; I make no complaint.

Mr. *George Hammond*, called in; and further Examined.

4336. *Chairman.*] HAVE you the statement which you promised to put in to the Committee?—I have not exactly the statement that I engaged to make. I was to make out a statement of the effect of the plan that I proposed for the last 20 years, and to state what diminution of duty the plan I proposed would have made during the last 20 years. I have worked it out with great care, and I find in working it out that the loss would be 50 per cent. to the revenue, consequently I was unwilling to leave my plan just in that state, thinking that the loss would be so great that we should have no chance to obtain it; consequently, I considered the matter over from letters received from different parts of the country, suggesting to me the propriety of making more steps in my scale, and not to go so far at a time as I have gone, and I have since worked it out with a loss of 24 per cent. That is a plan which I consider will satisfy the Chancellor of the Exchequer. By receiving (what I trust he would have) ready money, he would save the interest of money which the planter now has had, and I think that he would not consider the sacrifice too great to concede to the hop planters viewing the hop plantation in the way in which my plan does. I have since worked that out. I have taken great pains. I have gone through the statement and I am prepared to state it and to put it in. Mr. *G. Hammond.*

4337. Mr. *W. Martin.*] Have you, in making out that statement, paid attention to the quantity of foreign hops that would be likely to come in when ours were small in quantity?—No, I have not.

4338. Is not that a material feature in the scheme?—I do think that we are clearly entitled to all the protection of the Customs duty that we now have, and if we have that, I for myself feel satisfied. This scale of mine is entirely based upon the Customs duty remaining as it is.

4339. Have you made allowance for this, that when our hops are under 150,000 *l.*, a quantity of foreign hops will come in at a higher rate of duty than that which we pay, and therefore will tend to put the Chancellor of the Exchequer in a better position?—Yes. That would materially add to the revenue in short years, as I have stated before. I have not estimated that here, but I am quite aware that it would have that effect, and I stated it so before.

4340. In this new calculation that you have given to us, have you taken credit for the foreign hops that would come in?—No; I have taken no credit for it.

4341. If you have not done so, do you think you have done justice to your own plan?—Yes. But the Chancellor of the Exchequer, previously to this plan, when the price of hops was high enough to induce the foreigner to bring them in, had them in, and therefore he had all the Customs duty during the 20 years that I have averaged, and therefore I cannot take it again. I think in 1854 they had a Customs duty.

Mr. *G. Hammond.*

6 July 1857.

4342. If you go still further back, when we had short crops, did we get much from abroad?—No; because the duty was 8 *l.* 10 *s.*

4343. Was not the Chancellor of the Exchequer's calculation based upon 20 or 30 years?—Yes, and also upon this year.

4344. Has he had a large influx from abroad during those years?—Yes, he has once or twice; and it will still go on; but when hops are plentiful he will not get any Customs duty, because then hops will not be brought in. My statement is to be canvassed; and therefore I have not taken any undue advantage. I have worked it out to the best of my ability, in a fair straight-forward manner.

4345. *Chairman.*] Will you make your statement?—When the old duty is under 80,000 *l.*, I propose to charge 27 *s.* per cwt. That was my statement before. Then I was asked as to the extreme difference between 18 *s.* and 27 *s.*, and I have had letters from different parts about it; I therefore raise the duty 3 *s.* in each scale. I take off 3 *s.* a cwt.; then the old duty is under 110,000 *l.*, it is 24 *s.*; under 140,000 *l.*, 21 *s.*; under 170,000 *l.*, 18 *s.*; under 200,000 *l.*, 15 *s.*; under 225,000 *l.*, 12 *s.*; under 245,000 *l.*, 9 *s.*; and all above that, 6 *s.* Now I have worked it out. Within the last 20 years we had three years under 80,000 *l.* The three years' duty added together makes 160,000 *l.* in round numbers, which, at 27 *s.* per cwt., amounts to 401,760 *l.*; but the old duty received amounted to 260,400 *l.*; there is the sum of 140,000 *l.* that Government will gain by the new duty; and while they have that duty, they would gain the Customs duty, because the price of our hops would bring them in. Then there are three years out of the 20 that come under 140,000 *l.*, and those three years have paid 402,000 *l.*, which, at 21 *s.*, comes to 785,106 *l.* The duty paid to the Government during that time was 654,000 *l.*, so that there is about 130,000 *l.* gained. Then there are four years between 140,000 *l.* and 170,000 *l.*; the duty paid for those four years was 625,000 *l.*, which, at 18 *s.* a cwt., would be 1,046,250 *l.* By the old duty it was 1,017,287 *l.* that is very near, but it is rather more. Then there are two years which fall between 170,000 *l.* and 200,000 *l.*; the duty by the old scale was 349,000 *l.*, which, at 15 *s.* is 486,855 *l.*; and by the old duty there would be 567,000 *l.*; then there is a loss to the revenue. Then there are three years when the duty was between 200,000 *l.* and 225,000 *l.*; in those three years the duty paid is 632,000 *l.*, that, at 12 *s.* amounts to 705,000; the duty that was paid amounts to 1,028,980 *l.*; therefore, there is 300,000 *l.* of loss in those years. Then, there are three years when it was between 225,000 *l.* and 240,000 *l.* and that makes 714,000 *l.*, which, at 9 *s.* comes to 597,618 *l.*; under the old plan it paid 1,162,000 *l.* Then there are two years which are the two extraordinary years, the two last years, which I could have wished to have left out, because they tell so much against my plan; the duty paid was 664,000 *l.* on which at 6 *s.* a cwt., we should lose 700,000 *l.*; now, upon the whole of the 20 years what has been paid under the present duty amounts to 5,771,614 *l.*, and what would have been paid during the 20 years, upon my plan, would have been 4,393,413 *l.*, that is a loss of 24 per cent. I know that the difficulty in this arises from the large crops that we have grown within the last two years; consequently, if I had thrown out the last two years, I should have produced an average that would have been almost equal; but those two extraordinary years tell badly for us in making any average, as any gentleman conversant with hop plantations must know.

4346. Will you hand that statement in to the Committee?—

[*The same was handed in, and is as follows*:]

A TABLE intended to show the Difference between the HOP DUTIES actually Paid during the last Twenty Years, and the Amount which would have realised had the Plan which I now propose been in Action, viz.:—

	£.		s.	
When the Old Duty is under	80,000, pay	- - -	27	per cwt. Excise.
From that amount to -	110,000 „	- - -	24	„
„ „ - -	140,000 „	- - -	21	„
„ „ - -	170,000 „	- - -	18	„
„ „ - -	200,000 „	- - -	15	„
„ „ - -	225,000 „	- - -	12	„
„ „ - -	245,000 „	- - -	9	„
All above the last named -	- - -	- - -	6	„

Mr. *G. Hammond.*

6 July 1857.

YEAR.	Amount of Old Duty.	Total.	Scale.	Amounts to	Duty Paid at 17*s.* 6*d.* per Cwt.
	£.	£.	*Per Cwt.*	£.	£.
1840	34,000				
1849	79,000	160,000	27*s.*	401,760	260,400
1854	47,000				
,,	,,	,,	24*s.*	,,	,,
1843	133,000				
1844	140,000	402,000	21*s.*	785,106	654,255
1851	129,000				
1841	146,000				
1842	169,000	625,000	18*s.*	1,046,250	1,017,287
1845	158,000				
1853	152,000				
1837	178,000	349,000	15*s.*	486,855	567,997
1838	171,000				
1839	205,000				
1847	215,000	632,000	12*s.*	705,312	1,028,980
1848	212,000				
1846	242,000				
1850	232,000	714,000	9*s.*	597,618	1,162,025
1852	240,000				
1855	398,000	664,000	6*s.*	370,512	1,080,660
1856	266,000				
				4,393,413	5,771,614

Jovis, 9° die Julii, 1857.

MEMBERS PRESENT.

Mr. Bass.
Mr. Beach.
Mr. B. Blakemore.
Mr. Brand.
Sir Edward Dering.
Mr. Dodson.
Mr. Beresford Hope.
Mr. Knight.
Mr. John Locke.
Mr. Wykeham Martin.
Sir John Shelley.

JOHN GEORGE DODSON, Esq., IN THE CHAIR.

Mr. *John P. Smith,* called in; and Examined.

Mr. *J. P. Smith.*

9 July 1857.

4347. *Chairman.*] ARE you a hop grower in Worcestershire?—I am.

4348. In what part of Worcestershire?—Close to the city of Worcester; within a mile and a half of it.

4349. What extent of land have you in hop cultivation?—Fifty acres.

4350. Are those statute acres?—Statute acres.

4351. How many hills have you to an acre?—I have four poles seven feet square, and my plant is 889 hills, of seven feet triangular. I have 1,049.

4352. What is the greatest amount of produce that you have grown on an acre?—I have grown nearly a ton.

4353. In what year was that?—In 1855 I grew 46 tons on 50 acres.

4354. Have you ever grown anything approaching to that in any other year?—Yes; in 1846.

Mr. *J. P. Smith.*

9 July 1857.

4355. Did you grow a ton an acre then?—I grew full out a ton an acre.

4356. What kind of hops are yours?—I have six sorts in plant, Goldings, Mathon Whites (that is peculiar to the county), Cooper's Whites, three acres of Grapes, two acres of Jones's, and a light quantity of Colegates.

4357. Are the Mathon Whites or the Cooper Whites different from any hop that is grown in Kent or in Sussex?—I have never seen anything of the sort in either county.

4358. Do they grow them in Herefordshire as well?—Yes; they are the hops of the county.

4359. Mr. *Brand.*] Are they of a superior quality?—Undoubtedly; they rank next to the Goldings.

4360. *Chairman.*] How do they compare with the Farnham hops?—I think that they are on a par with them, but for name.

4361. Is your produce per acre very much larger than the usual produce in Worcestershire?—I think it is.

4362. To what do you attribute that?—To the situation, perhaps, and the land.

4363. Do you farm higher than most of the hop growers in your neighbourhood?—I think I have the credit for so doing.

4364. Do you farm upon a more expensive system?—I think I do; but I do not know what others do.

4365. Is not it commonly the practice in Worcestershire, that the hops are planted along with other crops?—No; but there are exceptions; it has been the practice in Herefordshire, and some parts of Worcestershire, to raise orcharding thereby, but I think that that in a great measure is abandoned.

4366. Is the system of cultivation of hops, as a crop alone, on the increase?—I think so, decidedly.

4367. Do they, upon light land generally, grow turnips with the hops?—Not except we get a blight at this period of the year; if we find that the hops are gone to blight, we like to get something.

4368. Was not that the practice more formerly than it is now?—No, I think not.

4369. Is the system of growing hops in orchards diminishing?—I think so.

4370. Was it the practice to grub the hops when the trees grew up?—Yes, certainly.

4371. So that the hops were only planted with the view of answering a temporary purpose?—Yes; till the plantation gets sufficiently large to protect itself.

4372. What sort of soil is it that you grow your hops upon?—Mine is a very deep loam.

4373. Is it the red land?—No; it is a dark friable loam.

4374. Mr. *W. Martin.*] What is the soil under it?—Gravel and sand, at some distance below.

4375. *Chairman.*] What is the depth of loam before you get to gravel?—Two feet sometimes, and three in some places in the meadows.

4376. Do you drain the land for hops?—If it is required.

4377. Does your best land require draining?—No, I think not; if we think it necessary, we always drain.

4378. Upon the greater part of the land upon which you grow hops, do you find it necessary to drain?—No.

4379. Does the land in your district grow very heavy crops?—Yes.

4380. Do you apply much manure for raising hops?—Yes.

4381. And for raising wheat likewise?—Yes; we farm upon the four-course system or the five-course system, as the case may be. I have adopted of late the five-course system.

4382. Where do you sell your hops generally?—I have generally sold them for some years to a gentleman of this Committee, Mr. Bass.

4383. Do you sell direct to the brewer?—Yes.

4384. Have you any dealings with the factors in the Borough?—Yes.

4385. Do you generally consign your hops to the factors in the Borough?—No; I should mention that I am a hop merchant as well as a farmer.

4386. Do you consider your Goldings of equal quality to those grown about Canterbury and in other parts of Kent?—I think they are superior to some; but there are no hops equal to the best East Kent hops.

4387. They are not quite equal to the best East Kent?—No.

4388. What

4388. What price do those Mathon whites and Cooper's whites bear in proportion to the Goldings?—There will be a difference of from 5 *s.* to 10 *s.* a cwt. in our market. There would be a greater disparity in the Borough than with us.

4389. Mr. *Brand.*] Could you inform the Committee as to the relative prices of those different varieties of hops, assuming Goldings to be worth 100 *s.*?—Assuming Goldings to be worth 100 *s.*, I should put the Mathon whites in our market at 95 *s.*, and the Cooper's whites the same; Grapes, I should say, would not be worth above from 86 *s.* to 90 *s.*, and Jones's the same. As to the Colegates there are very few of them, and they fetch as much with us as other things. I think they fetch about the same as Jones'. They are not known in our quarter. They have only been recently introduced, and I think it would have been a very good thing if they had never been introduced into Kent and Sussex.

4390. Sir *John Shelley.*] What makes you say that?—Because the produce is heavy, and they are a very bad class of hop.

4391. What do you mean by a "bad class"?—They are a bad bitter; they are powerful hops, but I think they are very bad hops.

4392. Do not they find a ready sale?—They do, at a price.

4393. At 86 *s.*?—It depends entirely upon circumstances.

4394. Did I rightly understand you to class them with Grapes, at from 86 *s.* to 90 *s.*?—Yes.

4395. Are they the Colegates grown in Canterbury?—I cannot speak to Canterbury; in the Canterbury collection there are a good many grown, as well as Rochester.

4396. *Chairman.*] What proportion is there between the crop that the Colegates bear and that which the Goldings bear?—I should say that the Colegates produce double as much as the others. I have grown myself fully 30 cwt. of them upon an acre.

4397. Sir *Edward Dering*] Are they as liable to blight as Goldings?—I think quite as much so. With me they have always been the first knocked up.

4398. Mr. *B. Blakemore.*] Even with the large growth of 30 cwt. an acre, you think it desirable not to grow them?—I do; because I know they are not desirable for the brewers.

4399. Sir *Edward Dering.*] Do you speak in the interest of the brewer and not in that of the grower?—I do. I think that we have all been doing wrong in producing heavy crops of bad hops.

4400. Do you think it has paid you badly?—No; just the opposite.

4401. Sir *John Shelley.*] I understood you to say that it was a bad thing for the grower. Although you produce such a quantity of hops, why is it bad for the grower?—I am not speaking of my own case. I understood this inquiry to be instituted on account of the distress that is said to exist in the county of Sussex. I do not think it applies to us at all.

4402. To yourself it has not been a bad business?—Undoubtedly not. I would not be a farmer if I could not be a hop grower.

4403. That is in consequence of large crops upon your land?—You must take the average of years. I could show you some years when I have grown nothing; but taking the average of 10 years, I find it answer my purpose, or I should not continue it.

4404. *Chairman.*] Did not you say that the cultivation of hops was becoming more systematic?—Much more so in our county.

4405. I see a return here of the number of acres of land under hop cultivation in the different collections for the last 20 years, and I find that in 1838 there were 1,888 acres of hops in Worcestershire, and in 1856 about 1,200 acres, showing a diminution of nearly one-third in the number of acres under cultivation in those 20 years; can you account for that?—I think I can; formerly we used to reckon 1,000 hills to an acre; and 1,000 hills frequently stood upon not more than three-fourths of an acre of land. Since the tithe commutation has come into practice, the farmers have found it their advantage to return the proper acreage, and now the return shows the amount of land and not the numbers of thousand hills; I do not think the acreage has gone down; I think we have as many statute acres.

4406. Formerly a great proportion were local acres?—Yes.

4407. Are there some of them still?—Yes; I think that both of these are returned still; and those stand sometimes upon half an acre, and sometimes three quarters of an acre.

Mr. J. P. Smith.

9 July 1857.

4408. Do you consider that the breadth of land under hops in your neighbourhood has been diminished of late years?—It may have slightly diminished; but not to any great extent.

4409. And that the system of high farming is carried on more extensively, and with greater expense?—Yes.

4410. Is not your evidence to the effect that, generally, hop-growing has been a successful business?—Yes.

4411. Sir *John Shelley.*] Have there been no complaints of distress in Worcestershire?—I have never heard of any.

4412. Have you ever been with a deputation to the Chancellor of the Exchequer?—I think in 1848 I did.

4413. In that year there was some distress?—We did not feel it as the Kent and Sussex men did. I think we could have paid the duty.

4414. The fact was that you joined the other hop growers upon the ground of distress in asking for a postponement?—Yes.

4415. Mr. *B. Blakemore.*] That was more from friendly feeling than from actual necessity?—Decidedly. I do not think we required it.

4416. *Chairman.*] Do you remember going up with the deputation at that time?—Yes, I do.

4417. Sir *John Shelley.*] Did you represent to the Chancellor of the Exchequer that you came merely to back up Kent and Sussex in their distress?—I do not know. I have not a report of the meeting before me.

4418. Did you go with the deputation?—I did.

4419. Did you, before the Chancellor of the Exchequer, say as you are saying now, that there had been no distress in hop-growing?—I think there were too many people talking upon that occasion.

4420. *Chairman.*] Were there a good many memorials sent up to the Chancellor of the Exchequer at that time?—I cannot speak to that.

4421. Are not you aware that several were presented from Worcestershire?—I do not remember. I did not see them. I think that there may have been.

4422. Mr. *Knight.*] Do you remember whether there was a commercial panic in 1847, which affected the price of hops?—If there was a commercial panic, no doubt it would affect the price of hops as well as other things, and I fancy there was.

4423. Was the crop in 1848 an ordinary crop?—It was a full crop, I think. I know very well the prices were very low.

4424. *Chairman.*] Do you know what you grew yourself in the year 1848 upon an average?—I think my average was not a high one that year. I had 42 acres in plant, and I got 14 tons 16 cwt., and that was about 7 cwt. per acre.

4425. Sir *John Shelley.*] I have before me an account of a meeting for the postponement of the hop duty in 1849, and I see that it is said that "General Lygon presented several memorials from the hop-growing districts of Worcestershire, and observed that many more would have been signed if a little more time had been afforded;" do you remember that?—I think it is likely to be the case.

4426. Do you remember a speech made by Sir Robert Price at that meeting for the hop planters of Herefordshire?—No.

4427. I see that he says that "the hop growers of Herefordshire, and of that part of Worcestershire with which he was acquainted, were in a similar condition to those of Sussex and Kent; perhaps the same degree of actual distress did not exist because they were not so exclusively hop planters, but distress existed for which they were anxious to find a remedy;" is not that so?—Yes.

4428. So that that was an exception to the general prosperity of Worcestershire?—I think it was; they were not very bad.

4429. That meeting was not entirely out of sympathy with Sussex and Kent?—I have no doubt it was very convenient to a great many people to have the duty postponed.

4430. Judging by the deputation before the Chancellor of the Exchequer, and the statements put before him, may we not assume that the hop duty at that time pressed heavily upon the Worcestershire growers?—They may have said so. The average price in that year was 54 *s.*

4431. At that time it was the opinion of your deputation that the duty was oppressive?—At that period I think it was their feeling.

4432. Mr. *Knight.*] Did the blight in that year affect the quality of the hops?—It was not good.

4433. Was not it so bad that a great deal was unsaleable?—It was very bad.

4434. Mr. *B. Blakemore.*] Do you remember the railway mania of 1846?—Yes.

4435. Do you remember the repeal of the Corn Laws in 1846?—I do.

4436. Do you recollect the great reaction of agricultural distress in 1848 and 1849?—Yes, I do.

4437. Do you remember what was the price of wheat in 1848 and 1849?—It was very low.

4438. Could you give us any idea of what it was?—I do not know what it was, but it was very low; and that will account, in a great measure, for our wishing the duty to be put off.

4439. Do you remember it being stated by the honourable Member for Wolverhampton that there was a sacrifice of agricultural capital to the extent of something like 90,000,000 *l.*?—Yes; and I think that he was right in his calculation.

4440. In 1848 and 1849, the Worcestershire and Herefordshire planters of hops and the growers of wheat shared in the great agricultural depression?—Undoubtedly.

4441. Mr. *Knight.*] What, in your opinion, is the cause of the present distress, so much complained of, in the county of Sussex?—There can be no question as to the cause of it; it is over-production.

4442. Do they grow more than is wanted in the country?—There can be no doubt of it.

4443. What remedy should you propose for that?—If I was growing an article that did not pay me, I should give it up. I have a good price for wheat, and I have a good price for mutton and beef, and if my hop-growing did not pay me I should not continue it; I should grub my hops. I would not carry on a game which would ruin me.

4444. Some of the witnesses before this Committee have given it as their opinion, that, taking off all the duty upon hops, and introducing foreign hops duty free, would be a remedy for the distress at present complained of; do you think it would be so?—I think it would increase it tenfold.

4445. What is your reason for that opinion?—I think so, for this reason, that now the market is so loaded with hops that we cannot sell them; and I think that if we had the present countervailing import duty taken off, we should have a much greater load. I think that common sense tells us that we should have much lower prices than the difference of the duty would warrant.

4446. *Chairman.*] Do you suppose that the price of hops would fall in that case?—I think it would be reduced far below the present amount of the duty which they now pay.

4447. Mr. *Knight.*] I think that you have already said that upon the average of years hops pay well, but I presume that they do not pay you every year?—Certainly not; I can show you a loss upon several years.

4448. Then it is only by the good price of several years that your balance becomes good?—Certainly.

4449. Do you suppose that in those years you would get a good price if foreign hops were introduced duty free?—Certainly not.

4450. Do you believe that the real effect of taking off the duty would be to prevent the growing of hops in England?—I do, to a great extent; I should not grow them after that.

4451. Are not your plantations all in as favourable a situation and with as favourable a ground as it is possible to have?—I think so.

4452. Would not there be a large amount of money that would not go into the hands of the English planters?—No; it would go into the foreigner's pocket.

4453. Do you know anything of foreign hops?—I am not personally acquainted with them.

4454. Have you made any inquiries about the price at which they can be brought to market?—I have; I understand that the cost of production in Bavaria is something like from 6 *l.* to 6 *l.* 10 *s.* per acre.

4455. Does the lowness of that cost arise from the value of land and labour being low?—I presume so; but I cannot give the Committee any information as to that.

Mr. *J. P. Smith.*

9 July 1857.

4456. How did you gain your information upon that subject?—I am not at liberty to say from whom; but I had it, I think, from a competent authority.

4457. Have you learnt it from parties in England, or from letters from Bavaria?—From letters from the country.

4458. Have you considered the price of Belgian hops at all?—Yes.

4459. Have you any information to give the Committee about them?—I think that something like 14 years ago, prior to 1844, the average price in Belgium was from 30 *s.* to 35 *s.* a cwt.

4460. Do you know at what price they would come into the London market, supposing there to be no duty?—With such an accumulated quantity as we have now, I cannot pretend to say.

4461. Sir *John Shelley.*] Would they come in at all at the present prices?—Certainly not.

4462. Mr. *Knight.*] What would the cost of transit be?—I think they could bring their hops from Belgium to the Borough cheaper than we can send them from Worcester.

4463. Sir *John Shelley.*] Do they do so?—Yes.

4464. Can you give the Committee the figures upon which you base that calculation?—I have no figures to give; but I understand that the freight is 1 *l.* a ton from Antwerp and those places.

4465. Mr. *J. Locke.*] Can you give your own cost up to London?—One shilling and sixpence to 2 *s.* a cwt.; I am not quite certain which, but the carriers will tell you. We never pay the freights, but I know that is about the sum.

4466. Sir *John Shelley.*] Who pays the freight?—The purchaser; for example, if I sell 3,000 *l.* or 4,000 *l.* worth of hops, I have nothing to do with the carrier, except in delivering them.

4467. Does the purchaser take that into consideration in the price he pays?—Undoubtedly.

4468. Mr. *Knight.*] Do you think that the Belgian hops will be delivered in London cheaper than they can be grown in England?—Yes.

4469. We have had the evidence of a considerable number of Sussex and Weald of Kent men, and they have told us that the sum of three guineas is the lowest sum at which they can send hops into the market, if they pay no duty at all. Do you think that Belgian hops during those 14 years, were constantly delivered in London under three guineas?—Undoubtedly.

4470. Do you know that any have been so delivered?—We have had plenty of Belgian hops; but I only know the price abroad. At the period I am speaking of there was a very heavy duty; I think the duty was five guineas or 5 *l.* 12 *s.* It was reduced from eight guineas to 5 *l.* 12 *s.*, and then to 2 *l.* 5 *s.*

4471. Sir *John Shelley.*] Was your average based upon actual sales, or upon your own opinion?—I know that the actual price of hops in Belgium for 14 years prior to 1854 (and I can prove it if necessary), was from 30 *s.* to 35 *s.* per cwt.

4472. I presume that you will agree with me that with reference to hops, quality is as much an element of consideration as anything?—It is more so than anything else.

4473. Can you state what was the quality of those hops that were sold at an average of from 28 *s.* to 32 *s.*; were they of good quality?—Very good.

4474. Were they as good as the Sussex hops?—A great deal better; Sussex has no chance with them.

4475. How comes it that the Sussex hops fetch more money in the market than Belgian hops?—They do not.

4476. Are you prepared to prove that?—Yes; I think I am prepared to prove it; I have no documentary evidence to prove it here, but I have been in the trade a good many years, and I know very well what samples of hops are, and I know that I have never seen any Sussex hops equal to Belgian.

4477. Mr. *Brand.*] Upon what authority do you state those prices?—I know it to be the fact.

4478. Do you speak of your own knowledge?—I do not speak of my own knowledge, but I can produce my informant.

4479. Mr. *Knight.*] Have you learnt it from a hop-merchant?—Yes; there is no doubt about it.

4480. Mr. *J. Locke.*] Do you know whether there are any returns made in Belgium of the prices in the different markets?—I am not aware.

4481. Mr. *Knight.*] The Committee have been informed that very superior hops have been sent to London from Bavaria; is that the case?—Yes.

4482. But they have also been informed that the plantation is not very large, and it has been strongly intimated that for various reasons (the smallness of the pieces of ground there, and for various other reasons) there is no possibility of extending the plantation; do you know anything of the extent of acreage of hops now grown in Bavaria?—I was informed by a gentleman who has a great deal to do with it, that there are 45,000 acres existing in Bavaria, now under plant.

4483. Is the growth of hops in Bavaria upon the increase?—I understand that it has increased 25 per cent. since 1854.

4483*. Who did you get that information from?—I got it from Mr. Bass only yesterday.

4484. Do you think that if the Excise duty and the Customs duty were taken off the effect would be excessively injurious, and almost ruinous to English hop growers?—I do. I think it would throw a vast quantity of land out of cultivation.

4485. We have heard a great deal from witnesses of hop-growing being a losing business; are you not, as a hop dealer, much acquainted with all the hop growers of Worcestershire and Herefordshire?—I am.

4486. Do you think that it has been a losing game to them?—I do not. I think that if it had been, they would have had brains enough not to pursue it. There is no Act of Parliament to compel us to grow hops; and I do not see why a man is to continue to grow what does not pay him; I am sure I should not.

4487. Can you speak from your own knowledge of Sussex and Kent?—I only know what I have heard. It is a natural consequence, that if you grow of any article double the quantity that is required, you must have depressing prices, but the thing will right itself; it is in the hands of the Kent and Sussex planters themselves. The acreage is too large, there is no doubt of that.

4488. Sir *John Shelley.*] Why does not the influence of the over-production that you talk of apply as much to one part of the country as the other?—We do not wish any alteration; we are content; and if we are not content, we will grub.

4489. I understand you to say that the reason that Sussex and Kent were distressed was, that they had over-produced, and that there was only a consumption for a certain amount of the hops that they had produced?—Certainly.

4490. If Kent and Sussex produce more than is required in the market will not the presence of that extra quantity affect all the hops in the market?—That is a matter for them; we are content.

4491. Must there not be another cause except the over-production?—I think I can tell you why it is; we do not make hops our first consideration; we do not put quite so many eggs in a basket (to use a common expression) as they do in Kent and Sussex.

4492. Do you know sufficient of Sussex to be able to say that that is the case in the Weald of Sussex?—I believe they do. I took from a return the other day the heaviest growing parishes of Worcestershire and Herefordshire, and the heaviest growing parishes of Kent and Sussex, and the result is, that in Worcestershire and Herefordshire we have one acre in 36¾ in hops, and in Kent and Sussex they have one acre in 13½.

4493. Putting Kent out of consideration, can you state that it is so in Sussex?—If I had half an hour I could. I have lumped them together. I have taken Kent and Sussex, and Worcestershire and Herefordshire.

4494. You cannot say what is the average amount of hops grown upon a farm in Sussex with reference to the size of the farm?—I cannot; but I have understood that it varies widely. Some men have a large plantation and others have not. I think that a gentleman who gave evidence here stated that he had about 10 per cent. in hops, or something of that kind.

4495. Mr. *B. Blakemore.*] Do you think that hops can be grown more profitably in Worcestershire than they can in Sussex?—I do not think they can.

4496. Is it your opinion that the present excise duty is oppressive upon the hop-grower?—No; not if they adapt their supply to the demand. If they get prices below what the hops can be produced for there is a loss of course.

4497. Sir *John Shelley.*] Does the hop duty press upon the farmer or does it not?—I do not think it does.

4498. Do you mean to say that the farmer would not have a better return for the capital employed in his farm if he had not the duty to pay?—I think not.

Mr. *J. P. Smith.*

9 July 1857.

4499. Supposing he has a number of hops to sell, do you think that if he had not a duty to pay he would not get more money for them?—It is my belief; because I think it is reckoned in the price, and the consumer pays the duty.

4500. *Chairman.*] Do you find that in your own case?—I do.

4501. Mr. *B. Blakemore.*] Is it oppressive upon the consumer?—Certainly not.

4502. Can you tell to what extent it presses upon the consumer?—To the extent of about 1 *s.* for 100 gallons. If the whole duty were taken off it would be 1 *s.* to 100 gallons, which cannot affect the consumer.

4503. Sir *John Shelley.*] If the duty presses so lightly upon the consumer, who does it press upon?—You must take it for what it is worth. I think it amounts to 1 *s.* in 100 gallons.

4504. Did I rightly understand you to say, without reference now to the import duty at all, that you prefer paying the duty to Government upon your production?—I do.

4505. Would you like the same thing to happen upon corn and meat?—There is no analogy between the two.

4506. Mr. *Bass.*] Should you like to have the duty doubled?—Certainly. I should prefer that to having it taken off.

4507. Sir *John Shelley.*] Would you like to have a duty to any extent?—I would not go to that extent, but I would prefer having the duty doubled, rather than see the import duty removed.

4508. Sir *Edward Dering.*] Have you ever turned your attention to the plan for a graduated scale of duty?—I have.

4509. How would that suit the interests of the growers?—I think it would create a good deal of trouble and inconvenience. I do not think much of it.

4510. You do not think it would be a relief to the grower?—I do not know that the grower requires relief. The relief is in his own hands.

4511. You mean by grubbing?—Yes.

4512. Do you consider that their only remedy?—I do. We have it in our own hands; we should adapt the supply to the demand.

4513. Sir *John Shelley.*] That is to say, if by any persons hop-growing is found to be a losing concern, your advice is no longer to grow them?—Yes.

4514. What would happen to the consumers, supposing that were general through the country?—It would find its level; if the demand increases we shall increase the supply.

4515. Do you know the quantity produced in the Weald of Sussex?—Yes.

4516. How is it as compared with the amount you grow on your own land?—Mine is an exceptional case. Mine is far above the average growth. There are many parts of Sussex where they grow as many; they grow considerably more in the neighbourhood of Rye.

4517. Mr. *B. Blakemore.*] What is your cost of cultivation per acre up to picking?—£. 22. 10*s.* per acre, including interest. I can give every item that I pay. I believe it is rather higher than Herefordshire and some parts of Worcestershire; but I think a man who farms well (and I think that hop-growing does not do unless a man farms well), will not save a great deal out of 20*l.* an acre.

4518. Mr. *Brand.*] What are the subsequent expenses per hundredweight?—From 40*s.* to 45*s.*, according to the crops, whether they are small or large.

4519. Sir *John Shelley.*] What is the size of the poles on your ground?—I am rather an extravagant poler. My poles are high; they are from 14 to 18 feet.

4520. What do you pay per hundred for poles?—I think, for poles of that size, 1*l.* per hundred.

4521. What are the poles that you generally use?—We prefer ash and larch.

4522. What do those poles cost?—From 15*s.* to 25*s.* per hundred, averaging 1*l.* You will get poles of a worse description, and of a lower class, at 10*s.*

4523. Sir *John Shelley.*] In your particular district, do they put in poles with the branches?—Yes.

4524. Do you do so?—I do; I am not particular about that so as I get a good pole.

4525. Sir *Edward Dering.*] Do you pole them with all the branches on?—No; it is only a fork, like a fish's tail.

4526. Sir *John Shelley.*] Are not they put in with several branches?—No; a straight pole is put up, with a fork at the end.

4527. Mr. *B. Blakemore.*] What is your opinion as to the period of the collection

lection of the duty; is it convenient or inconvenient?—I would make no alteration as to the date of paying the duty.

4528. You would leave that alone?—I would.

4529. Mr. *Brand.*] What is the rent of land in your district?—It varies from 1*l.* to 2*l.* per acre.

4530. Sir *Edward Dering.*] What have you allowed in your account?—I have allowed more. It has been the fashion, in Herefordshire and Worcestershire, to put the hops upon the worst land. I have put them upon my best land. My farm costs me 50*s.* an acre, and I charge them 3*l.* 10*s.* It is the best piece of land I have, and it is worth more than that.

4531. Mr. *Brand.*] Is there much land that you would consider available for hop cultivation in Worcestershire?—Yes.

4532. And upon which hops might be profitably grown?—I think so.

4533. Mr. *Bass.*] Are you speaking of your own experience?—I am.

4534. Have you any doubt that they will be able to compete with the foreigners?—I have very great doubt.

4535. Do you classify yourself with the growers of Sussex?—No.

4536. Do you grow better or worse hops than they do in Sussex?—Better undoubtedly.

4537. You get a much higher price, I imagine?—Yes, there is no doubt about it.

4538. Have you any doubt that you average 30 per cent. more than the average growth of Sussex?—Certainly not; you must not take the average price of Sussex hops unless you take the average price of ours; take the first-class Sussex hops and put them against mine; if you put the best class of Sussex hops against mine, I can make the comparison.

4539. You have been making a comparison between the mode of business in Sussex and your own particular mode of business; therefore I ask you whether you have not for the last 10 years, according to the best of your knowledge, for the hops that you generally grow, been paid at least 50 per cent. more than the average price of Sussex hops for that period?—I am not sure of it; but that is my belief.

4540. Supposing that the average price of Sussex hops for the last 10 years is under 60*s.*; are you sure that you have not averaged 6*l.* within the last 10 years?—I cannot answer that question without referring to my books, which I have here.

4541. Do you remember what you got in 1854?—I got 20 guineas a cwt.

4542. Do you remember what you got in 1853?—In 1853 you paid me 14*l.* a cwt., and I apprehend you would not have bought them from me if you could have got them better anywhere else.

4543. Mr. *B. Blakemore.*] What did you get in 1848?—The large amount of 78*s.* per cwt.

4544. Mr. *Knight.*] In giving the prices of the hops which you have grown and sold, you are not talking of the general prices in the district of the Worcester collection?—Certainly not.

4545. And you are not talking of the prices at which the farmers sell their hops to the dealers?—Certainly not; Mr. Bass pays me a fair trade price.

4546. Therefore we cannot draw an inference from prices as to the usual price?—No; it is not the market price.

4547. Sir *John Shelley.*] Mr. Bass has told you that the average price for hops obtained by Sussex growers is 3*l.*?—Yes.

4548. Supposing, instead of the prices you have got for your hops during the last 10 years, you had got an average of 3*l.*, should you like things to remain exactly as they are?—I will not answer that question myself, but I would put it to my friends and neighbours in Worcestershire and Herefordshire.

4549. You would rather pay double duty than have free trade?—Yes, I would.

4550. Supposing your average price during the last ten years had been under 3*l.* a cwt., would you still be of that opinion?—I do not know; I do not think that question applies exactly to us; we have not a large quantity of Worcester hops, and we have no compulsion to sell them so low as they are bound to do in Sussex, from their over-production. There are more Sussex hops in the market than

Mr. *J. P. Smith.*

9 July 1857.

than can be sold, and there are not more Worcester hops in the market than can be sold. If my prices were so low as they are in Sussex I should grub my hops; I would not stand to be shot at.

4551. What would you do with the capital expended upon oast houses?—Let them take care of themselves; turn them to any purpose; make a piggery of them, or anything, rather than be ruined.

4552. Mr. *Bass.*] You have said that you prefer a double Excise duty to having the duty taken off; if you had your choice, would you prefer the war duty being taken off, the import duty remaining, or would you prefer to remain as you are?—I should prefer to remain as we are; but I believe that the war duty being taken off would satisfy 99 out of 100, and therefore I do not object to it, for I do not wish to be the means of oppressing anybody.

4553. Have you not a general knowledge of the hop trade?—Perhaps I may be considered to have.

4554. Will you be good enough to tell the Committee whether, in your opinion, the quality of the finest hops grown in Mid and East Kent has deteriorated within the last 10 years?—I think that it may have.

4555. What is the cause of that deterioration?—I think it is from over-manuring, and growing too large crops.

4556. I believe you have been very successful in producing a good crop?—Yes, I have.

4557. Under those circumstances, are you apprehensive of competition from the foreign growers?—Yes, I am.

4558. Will you be good enough to tell the Committee why you are afraid of competition with foreign hops rather than anything else?—Because the cost of cultivation in this country is so much greater than the cost abroad.

4559. Do you know whether the produce per acre abroad is greater than that in this country?—I do not know.

4560. Is not that an important ingredient in such a consideration?—I do not know but what they can grow as many fine hops as we grow in this country; I should think they can grow as many per acre; there is no reason why they should not.

4561. You have told the Committee that they have increased their cultivation 25 per cent. within the last two years?—So you informed me yesterday.

4562. Can you inform the Committee what is the produce per acre in Bavaria?—My information, I think, will be second-hand; you told me that their average produce was 5 cwt. per acre upon one pole, so that, consequently, if they put four poles it would increase it four-fold.

4563. Would it increase the quality in the same proportion?—I did not say anything about the quality.

4564. Would not it be lessened in quality if you put four poles where one had been used?—Yes; but yet the quality may be very good.

4565. Sir *John Shelley.*] You have said before, that in hops the quality more than anything else must be borne in mind?—Yes, but I am speaking of quantity.

4566. Must not the quality influence the competition?—Yes, but if they produce four times the quantity they now do, the competition will be greater.

4567. Mr. *Bass.*] You spoke of the duty falling upon the consumer; are you aware that for the last two years it has averaged 700,000 *l.*?—Yes.

4568. If that were totally removed do you think that the consumer would derive that benefit from it?—I believe that he would not benefit to the value of the cravat that I have on.

4569. Will you explain to the Committee the ground of that opinion?—Because it is so small; I do not know any coin that will represent it upon a quart of ale.

4570. Could you tell the Committee of any other article from which the sum of 700,000 *l.* of duty being removed per annum the consumer would not reap an advantage?—I think that if they removed the duty upon malt it would do some good, or even if they removed half the duty upon malt.

4571. *Chairman.*] Do you think the removing of 700,000 *l.* of the duty of hops would make no difference to the consumer?—I think not.

4572. Sir *John Shelley.*] Why does your remark apply to malt and not to hops?—Because that would be something tangible; you would get an amount that you could spread over the consumers of the country.

4573. If the hop duty were taken off, would not the growers benefit as much as the growers of barley would benefit if the malt duty were taken off?—No, I do not think so, because I think that the quantity of hops to a bushel of malt is so small, ordinarily speaking, it is something like a pound.

4574. Mr. *Knight.*] Is not malt used for any other purposes besides brewing?—It is used for several other purposes, but we cannot consume hops in any way but by brewing.

4575. Mr. *Bass.*] Do you know that the duty on malt has averaged within the last few years 4,000,000 *l.* and 5,000,000 *l.*?—Yes.

4576. And that the year before last you paid 800,000 *l.* for the duty upon hops?—Yes.

4577. Would a duty of one-fifth of that be so infinitesimal as not to be felt by the consumer?—Yes, for this reason; there is not consumption for the hops upon which that 700,000 *l.* worth of duty is paid; that is the growth of hops; if the consumers would take them, and give a good price for them, we should be very glad, but they cannot consume above a certain given quantity.

4578. In the year 1854, were not you of opinion that the whole of the produce of the country was consumed?—I think in 1854 it was; but that is a thing which will not occur again; I think that the prospect of the trade in that year was very good.

4579. Supposing we grew the same quantity of hops as in 1854, is it not possible that the like thing may occur again?—Yes.

4580. Are you aware that in 1854 the estimate of the duty was as high as it is at present?—Yes.

4581. Is it not then possible that the duty may go down again?—Yes; almost anything is possible, but I think it is very improbable; I saw a vast district of plantation yesterday, and it was quite clean, and in the most blighted district which I visited with Mr. Bass we found one ground without a louse in it.

4582. If we had now the same crops as in 1853 and 1854, are not we likely to come to the same result again?—If we grew no hops, of course we should have a high price, but we are not likely to do that; and I have been told that appearances abroad are exceedingly good; therefore they will get hops from there, and will pay the small import duty.

4583. Sir *Edward Dering.*] What is the estimate of the duty now?—£. 120,000 to £. 130,000.

4584. Mr. *Knight.*] You have been subjected to a severe cross-examination, upon the assumption that the average price of hops in Sussex for the last 10 years had been under 3 *l.* per cwt.; do you admit that to be the fact?—No; I do not believe that hops have been under 3 *l.*; they grow a great deal of rubbish, and that would bring down the price of hops.

4585. Supposing that I have been informed that the average price of Sussex hops for the last 10 years had been above 5 *l.* per cwt., would not that make a great deal of alteration in the questions which you were asked, and in the answers which you gave?—Undoubtedly; 5 *l.* a cwt. is a very good price.

4586. Then any answers which you made upon the assumption that the price of hops for the last 10 years had been under 3 *l.* must not be taken for good in case the price of hops is found to have been above 3 *l.*?—Just so; I never said that it was 3 *l.*, and I do not believe that that was the average price.

4587. Mr. *Bass.*] Have you any doubt that the average price in Sussex for the last 10 years has been under 5 *l.*?—I have no data upon the subject, but I believe not; we must take the price in the Borough; you can get statistics there, about which there can be no mistake.

4588. Mr. *Beach.*] Are the hop growers in Worcestershire generally men of capital?—Yes, I should say they are fairly so.

4589. Do you think that it is not a remunerative business unless the grower is a man of capital, so as not to be obliged to borrow when the duty is to be paid?—Certainly; I think he should have a certain amount of money, but we find no such thing as that. I heard a gentleman give evidence the other day relative to a class of very respectable men, namely, the gentlemen in the Borough; I think that class are highly essential to the growers of Kent and Sussex, and I should be very glad indeed if I cold have such a man at my back when I wanted 500 *l.* or 1,000 *l.*

Mr. J. P. Smith.

9 July 1857.

4590. *Chairman.*] Are there not annually published in the Borough tables of the average price of hops for a series of years?—Yes, I think there are.

4591. Are you aware from such a table as that what the average price of all kinds of hops has been for the last 10 years?—No; I am not prepared with such statistics.

4592. Are there tables which would tell us that?—Undoubtedly there are.

4593. You have told the Committee that the cause of the distress in Sussex is over-production?—Yes, that is my belief.

4594. And your advice to the planters in Sussex is to grub their hops?—If they do not pay, let them grub them, and turn their attention to something else which pays them.

4595. Assuming that the 8,000 or 9,000 acres of land which are cultivated with hops in Sussex went out of cultivation, would it not be a good thing for the land that remained?—Undoubtedly; if I did not find it worth while to continue my hops irrespective of Kent and Sussex, I should grub them.

4596. Are there not years when there is a great scarcity?—Yes.

4597. Yet you think that the acreage of England is larger than is required?—I judge so from the supply; there can be no doubt about it, and hence the distress.

4598. Mr. *J. Locke.*] Do you think that Sussex is a fit country to grow hops in?—Yes, for hops of a certain class.

4599. What is your reason for saying that they should grub them?—If they do not pay, they had better grub them.

4600. You do not object to Sussex more than to any other place?—No; I look at it as a matter of pounds, shillings, and pence.

4601. Sir *John Shelley.*] Supposing the county of Sussex or any other district thought that they could grow hops successfully if they had no duty to pay, should you concur in that opinion?—That is matter of opinion, and they are not unanimous; I met a gentleman the other day who was dead against it.

4602. Whereabouts is he?—He is not in Sussex, but upon the confines; he is a free-trader; he is in the Weald of Kent; in the part that is quite as much affected by causes of distress as Sussex.

4603. *Chairman.*] Are most of the hops grown in Worcestershire sent up to the Borough?—No.

4604. Are your hops sent there?—No; mine go direct to Mr. Bass, as a rule.

4605. How are most of the hops grown in Worcestershire sold?—They are sold at market.

4606. The local market at Worcester?—Yes.

4607. Sir *Edward Dering.*] Are they sold at Worcester fair?—Yes; we have a large market every Saturday, similar to the Canterbury market.

4608. Are they purchased direct by the brewer, or the country merchant?—They are purchased by such men as myself; the merchants.

4609. There are no factors there?—No, there are no factors; I think there are two or three factors, but they are not in that position.

4610. Have you ever been a factor yourself?—Never.

4611. How are the factors paid?—By the cwt., or the pocket.

4612. Are they agents only to sell for the producer?—Just so; they are consigned to them generally in the Borough.

4613. Are they paid by a commission?—They are paid by a commission.

4614. Mr. *Brand.*] Do they buy by sample?—They do.

4615. Do they find any difficulty in distinguishing the various kinds of hops?—No; we have a different system in our county from that which is in practice in Kent and Sussex; we know our hops by numbers.

4616. Mr. *Bass.*] You visited a large district in Kent yesterday, and had an opportunity of learning the opinion of many planters on the subject; will you be kind enough to tell the Committee what was their opinion?—I only met with one sensible man in the county.

4617. Sir *John Shelley.*] What did that sensible man say to you?—He would rather keep the present duties as they are.

4618. Mr. *Bass.*] Were all the rest for free trade?—No; a good many wanted an alteration, but they did not know what.

4619. Sir *John Shelley.*] Did they all want an alteration, except that one?—No; I think that one or two whom I got into a corner did not.

4620. Sir *Edward Dering.*] Do you consider the system of marking good for all parties?—I think it is only fair; I think it is a protection to the grower and to the purchaser.

4621. Is it a great advantage to the parties concerned that there should be a distinctive mark upon the pockets?—I think so; it is the means of judging in the trade, and I do not see why any man should adopt my mark, or why I should adopt any other man's mark.

4622. Mr. *W. Martin.*] Is the extraordinary tithe in your neighbourhood high?—We are lower a good deal in our county than in Kent and Sussex.

4623. What do you pay?—From 5 *s.* to 8 *s.*, upon an average, in our county.

4624. What is it in your own immediate neighbourhood?—I think it is about 10 *s.*

4625. Have you grown large crops for the last 10 years?—Not always; last year I only produced 10 cwt. per acre.

4626. Then you have not a glut as they have had in Kent and Sussex?—No; we grew small crops last year.

4627. Were they blighted?—Yes.

4628. Had you small crops at low prices?—Yes.

4629. Mr. *Bass.*] Did not you make 5 *l.* 5 *s.* per cwt. for your hops last year?—Not quite; about 5 *l.* 3 *s.* upon an average.

4630. Mr. *W. Martin.*] If your neighbours are suffering from blight and low prices, are they not distressed?—They do not say so; I have attended the meetings that we have had, and there was great unanimity; we have not had a dissentient voice.

4631. If you had a small crop, there will be less duty to pay?—Yes; I think we were rather favoured last year; I do not think that a gentleman growing a ton an acre can afford to sell at 60 *s.* and pay the duty.

4632. Sir *Edward Dering.*] Generally speaking, in your part of the world the planters are all in favour of keeping things as they are?—Yes, almost to a man.

4633. Sir *John Shelley.*] If a man has a garden under hop cultivation, can he get rid of it?—He can get rid of it at once; I could get rid of my plantation at once.

4634. Would it not take a long time to plant another garden?—I should not want to plant another garden if it did not pay.

4635. Is not it well known that if a man has grown a good crop one year, he hopes that he will be more favoured next year?—Just so, and I do not see why he should make such a complaint about it.

4636. *Chairman.*] Does not the fact that he has the duty to pay, whether he gets a good price for his hops or not, render it essential that a planter should have a great amount of capital?—I do not know that it does; if he grows a sufficient crop to sell, if he is compelled to hold his hops, and he has not a large amount of money, it inconveniences him.

4637. Mr. *J. Locke.*] Does not every trade require a certain amount of capital?—Yes.

4638. Will not the man with capital do better, generally speaking, than the man without capital?—No doubt; he is not driven upon the market.

4639. Is there any distinction between the hop trade and any other trade in that respect?—I think not; it is a trade that can be made profitable if people will take the right means.

4640. *Chairman.*] Is there not this difference with regard to hops, that the cost of production is increased by the amount of the duty?—I do not consider that at all; I look to the brewer to pay the duty; I get it from the brewer, and I get six months' credit upon the first moiety, and 14 months' upon the second.

4641. You get a sum of money in hand?—Yes.

4642. Do you find that beneficial?—Certainly.

4643. Do you think it quite right and proper that an Act of Parliament should be kept up in order to give you that benefit?—I do not think anything of the kind, but I see no reason why it should be altered; we pay the duty when we are called upon.

Mr. *William Taylor*, called in; and Examined.

Mr. *W. Taylor.*

9 July 1857.

4644. Mr. *B. Blakemore.*] I BELIEVE you are a hop grower, in Herefordshire?—I am.

4645. How many acres of hops do you cultivate?—Twenty-four.

4646. How long have you been a cultivator of hops?—Twenty-one years.

4647. In what district in Herefordshire are your hop lands situated?—One of my farms is in the Stoke Edith parish, seven miles from Hereford, and the other in Ocle Pitchard, nearer Bromyard; it is in two farms.

4648. You have heard the evidence given by Mr. Smith?—I have.

4649. Mr. Smith is a neighbour of yours, is he not?—He is in the Worcester district.

4650. You are not far from that district?—No.

4651. Do you concur in the evidence that Mr. Smith has given us?—In every word, excepting that he says that he would wish the duty doubled.

4652. Sir *Edward Dering.*] Would not you rather pay double Excise duty than have the Customs duty lowered?—Yes. If that was his meaning, I agree with him.

4653. Mr. *B. Blakemore.*] Do you consider that the present Excise duty is oppressive to the planters?—Not at all.

4654. Is it oppressive to the consumer?—I think not; it certainly falls upon the consumer.

4655. Does it fall upon him to an extent that he feels severely?—I should think not; it is 1 *s.*, or from that to 1 *s.* 3 *d.* on 100 gallons of beer, according to the strength of the beer.

4656. Do you consider that if the Excise duty and the import duty were repealed, you could compete with the foreigner in the long-run?—Certainly not.

4657. Do not you think that the effect of that would be prejudicial to the hop planters?—I do.

4658. And to the labourers in their employment?—Certainly.

4659. Do you think that the repeal of this duty would have the effect of driving many acres of hop land out of cultivation?—I think it must.

4660. And of throwing many poor labourers out of employ?—It would; and many families of women and children.

4661. Taking the circumstances as they have been for the last 10 years, do you consider hop cultivation to be profitable?—Certainly, it is.

4662. You have found it so?—I have.

4663. And it has been so generally in your neighbourhood?—Yes, I should say so.

4664. You are a tenant of Lady Emily Foley's?—I am.

4665. Is not her estate cultivated in the very highest and best manner?—I think so.

4666. Does she not annually have inspections of her estate, to which she invites anyone who chooses to come?—She does.

4667. Does she not distribute prizes herself on that occasion?—She does.

4668. Does she not entertain her tenantry and visitors at her mansion upon that occasion?—Yes.

4669. Does not she give every encouragement to those who cultivate their farms properly?—She does.

4670. Are her tenants generally men of capital?—I think they are.

4671. Have you in your district other things besides corn; have you orchards of apples and pears?—Yes, we have.

4672. What do you consider upon the long-run your most profitable crop; your hops, your grain, or your cider and perry?—I consider my hops the most profitable crop I have, although it is upon the smallest portion of my land; in fact, I would not live in the neighbourhood if it were not for the hops; I should prefer a sheep farm. It is heavy clay, requiring a great deal of cultivation.

4673. Do you know anything of the Sussex plantations?—No, I do not.

4674. Would it be possible for you if the Sussex planters were to grub up their hops, to increase your gardens?—We should do so to a certain extent.

4675. And the state of depression in Sussex would not deter you from increasing your hop plantation?—We should increase it if it paid us; but we should not continue it if it did not; I cannot understand any person doing so.

4676. Do

4676. Do you remember the years 1848 and 1849?—I do.

4677. Were there any memorials from Herefordshire upon the state of the general distress?—I believe there were.

4678. Do you remember whether your Members went up to the Chancellor of the Exchequer upon that occasion?—I believe they did.

4679. Was the present Chancellor of the Exchequer one of your Members then?—I think not; I think Sir Robert Price was.

4680. Was the distress that you were suffering under then, a general agricultural distress?—I think it was.

4681. Did you experience a great diminution of your capital in those years?—Certainly.

4682. I believe you are a large breeder of stock?—I am.

4683. Did your stock suffer under the depression also?—Yes.

4684. Then the distress was general throughout the agricultural districts of Herefordshire, as well as elsewhere?—I think it was.

4685. Taking the last 10 years, do you consider that things as they are and have been, have not prevented the growth of hops from being a remunerative occupation?—Certainly not.

4686. Could you suggest any alteration as to the amount of the duty?—I could not.

4687. Should you prefer it remaining as it is?—I should.

4688. Could you suggest any alteration as to the time of its collection?—No.

4689. Does it suit you so well that you do not wish any alteration?—Just so.

4690. And rather than repeal the import duty, you would submit to the Excise duty, the circumstances as to the collection of the duty remaining as they are?—Yes.

4691. Sir *John Shelley*.] You stated that you were apprehensive of a prospect of foreign competition; can you tell the Committee anything about the foreign trade?—I cannot.

4692. Upon what do you ground your fear of foreign competition?—If the duty is taken off any article, it has a tendency to produce competition.

4693. Whether that is likely to occur in this case or not, you have not enough knowledge of the foreign trade to be able to say?—No, I have not.

4694. What rate does your hop land let at?—From 1 *l.* to 1 *l.* 10 *s.* per acre.

4695. What is your average production of hops per acre?—10 or 12 cwt. per acre.

4696. And you find the hops the most profitable part of your cultivation?—I do.

4697. Is that the general rule in your neighbourhood?—I believe it is; I have attended three meetings there relative to it; and the unanimous opinion there has been, that things should remain as they are; I have never heard anything suggested to the contrary.

4698. Did not the people in your neighbourhood think differently when they attended before the Chancellor of the Exchequer for the postponement of the duty?—I think it was as much the general depreciation of prices as it was the state of the hops that caused that; for we did not cultivate hops to any great extent at that time.

4699. Mr. Prosser, who was the Member for your county, attended before the Chancellor of the Exchequer, and I have before me a report of what he said upon that occasion: it is as follows: "Mr. Prosser, M. P., added his corroboration as to the state of distress in many districts where the hop was cultivated. If the duty were levied, it was very probable the cultivation would altogether cease in some places, because it would be necessary to seize not only the plants, but the hop poles themselves, to satisfy the claim." May we not take it for granted that your neighbours did not like the duty then quite so much as they do now?—Of course, it was a relief to them to have the duty postponed; but they were suffering distress from other causes besides the cultivation of hops.

4700. Does not that speech of Mr. Prosser's, which I have read, apply to the growth of hops?—Yes, very likely it does.

4701. Did you attend that deputation?—I did.

4702. Were you present upon the occasion which I have referred to?—I was.

Mr. *W. Taylor.*

9 July 1857.

4703. Sir *Edward Dering.*] Did I rightly understand you to say, that at that time the distress arose from the low price of other articles of agricultural produce as well as hops?—Yes.

4704. With regard to other produce, it was impossible to get relief?—Certainly I think it was.

4705. Was not the postponment of the hop duty the only tangible mode of getting relief?—Yes; it was like borrowing so much money for six months.

4706. Mr. *J. Locke.*] Was the duty ultimately paid in 1848?—It was.

4707. Sir *John Shelley.*] Do you remember the price of wheat in that year?—No, I do not.

4708. Do you know the price of barley?—No, I do not.

4709. Do you remember the price of meat?—I cannot speak to that; I could have been prepared with these things if I had known that I should have been asked about them.

4710. As you are a great grazier in Herefordshire, can you inform the Committee whether in that year the price of beef was low?—It was not so low as corn, but it was lower than it is now.

4711. Mr. *Brand.*] Did I rightly understand you to say that you consider the Excise duty a benefit to your hops?—I consider it no injury to them.

4712. Should you like to have that benefit extended by an increase of the duty?—I should rather that things should remain as they are now; I am quite satisfied with them.

4713. *Chairman.*] Should you have any objection to remove the Excise duty alone, keeping the Customs duty as it is?—I should not desire it at all.

4714. Would you rather that things should remain as they are?—Certainly.

4715. Do you consider the Excise duty a benefit in itself?—I do, to a certain extent.

4716. In what way does it act beneficially?—Our price is that much higher to the merchant, and we are not called upon to pay till six months in the first place, and 12 months afterwards, which gives the man who has a limited capital a better chance of cultivation.

4717. Sir *John Shelley.*] Does not the country provide the capital for the man who is short of it?—Yes, to some extent.

4718. Sir *Edward Dering.*] Do you think that it would not be a benefit to you to have the Excise duty decreased?—No; I do not see that it would.

4719. Sir *John Shelley.*] In fact you take a pleasure in paying this duty?—I feel willing to pay it when it is due.

4720. Sir *Edward Dering.*] Do you consider that it comes eventually out of your pocket?—It does not.

4721. Do you conceive that eventually the duty is paid by the consumer?—It must be; there can be no question of it.

4722. *Chairman.*] That is your experience?—That is my opinion.

4723. You do not pay it out of your pocket?—Certainly not.

4723*. Do you think that if there were no duty, the cultivation of hops would be extended?—I think not.

4724. I see, from a Return which I have before me, that the number of acres under hop cultivation in Herefordshire has apparently in 20 years diminished from 10,600 to 4,600; can you give any explanation of that?—It is very easily accounted for; at that time it was customary to make the return by hop acres, and often there were two hop acres upon a chain acre; now it is all referred to the statute acre; that accounts for the difference.

4725. Since what time have you left off reckoning the space by hop acres?—I think it has been gradually left off; perhaps in a few instances the return is made in hop acres even now. I think there is quite as much land under hops in the county of Hereford now as there was at any time since I can remember.

4726. Mr. *Bass.*] I believe that you said that you grew 10 cwt. an acre, yourself?—Yes.

4727. Had you a full crop in 1856?—No, I had not.

4728. Was not it, with the exception of 1855, the largest crop ever grown in the kingdom?—Yes.

4729. Then you did not grow in proportion to that large crop?—No, I did not; there were many hop fields in our neighbourhood not picked at all; they grew none.

4730. Was it not the fact that they grew hops, but did not pick them?—They grew

grew none; the blight was so severe, that in part of our district they never grew at all.

4731. Now, with regard to 1855: had you a full crop of hops in 1855?—I had.

4732. How many cwts. did you grow in that year?—Something like 17 or 18 cwts. per acre.

4733. Was it not the greatest crop you ever grew?—I think it was not our largest crop.

4734. Was not it your second greatest crop?—Yes.

4735. What is the acreage of Worcester and Hereford now?—I cannot answer that question.

4736. Supposing it to be 8,000 acres, which is one-seventh of the whole ground in cultivation in 1855; and supposing that you only paid 30,000 *l.* duty, which is only one-thirteenth of the whole duty; can you explain why it is that you only grew one-thirteenth of the whole duty, whereas your acreage was one-seventh of the whole acreage of the kingdom?—Some years we grew a very small portion of duty, but in other years we grow a large one. In 1854 there was a blight, and yet I grew 15 cwt. per acre in that year.

4737. Sir *John Shelley.*] What do you put the profit per acre upon the average during the last seven years?—I am not prepared to answer that question.

4738. What is your profit upon an acre of wheat upon the average of the last seven years?—I am not prepared to answer that question; it will require some calculation to make it out.

4739. As far as your first impression goes, your profit per acre for the last seven years upon hops is larger than upon wheat, farmed equally highly with the other?—Certainly.

4740. *Chairman.*] What do you put the expenses of cultivating an acre of hops at?—I am speaking as to my own cultivation; my expense amounts yearly to about 18 *l.* 19 *s.* per acre; that is exclusive of picking and drying.

4741. What are the subsequent expenses of picking and drying?—From about 22 *s.* to 25 *s.* per cwt.; it depends upon the crop.

4742. Do you farm more expensively than most of the other growers in the Herefordshire collection?—Perhaps more so upon the average, but not more than some of my neighbours.

4743. As compared with the Worcestershire hops, do your hops fetch about the same price in the market?—I should think generally they fetched about the same price; there is very little difference.

4744. You say that hop cultivation is very profitable?—There is no doubt about it.

4745. I see by the Return to which I have before referred, that upon an average of 13 years the Herefordshire collection paid a duty of 2 *l.* 18 *s.* 11 *d.* per acre; does it not follow from that that they must have grown upon an average about 3 cwt. per acre?—There the mistake relative to the different acreages must have been made, which would affect that return.

4746. Would not that affect it to the extent of one-third?—Yes.

4747. Would not the average growth therefore in the Herefordshire collection have been about 4½ cwts. per acre?—Something like that, I should think.

4748. Sir *John Shelley.*] Is that your growth?—I never grew so low an average.

4749. Supposing that to be the average of your district, does that pay the grower?—I should think not.

4750. Mr. *B. Blakemore.*] Still you had three large meetings of growers, and they were unanimously satisfied with the present state of things?—They were.

4751. Were those meetings largely attended?—The principal hop growers were there.

4752. Sir *John Shelley.*] Were they equally apprehensive with yourself of the untaxed foreigner coming into competition with you?—I should think they were.

4753. Sir *Edward Dering.*] They wish to remain where they are?—Yes.

4754. Sir *John Shelley.*] Did they know much about foreign trade?—I should think not, but I should think they had the sense to know that they would have foreigners coming in if the Customs' duty were taken off.

4755. Sir *Edward Dering.*] Had not they the same opportunity of knowing about the foreign trade as other people?—Yes.

Mr. *W. Taylor.*

9 July 1857.

4756. Mr. *Knight.*] If they are desirous to remain where they are, may we not suppose that they are not badly off?—Yes.

4757. Mr. *B. Blakemore.*] Is not there a large hop market in Worcester?—Yes, there is a hop exchange at Worcester.

4758. Is there one at Hereford?—There is not a large one.

4759. Is there one at Ledbury?—No, I think not.

4760. Is there one at Leominster?—Not that I aware of.

4761. Do not most of the growers in your district pitch their hops at Worcester?—They do.

4762. Do the factors and merchants attend there?—Yes

4763. Are the factors and the merchants the same persons?—Not in all cases.

4764. *Chairman.*] Have you any dealings with the factors in the Borough?—None whatever.

4765. Do you never send your hops to London?—No.

4766. Do you sell most of your hops in Herefordshire?—They are nearly all sold in Worcester and Hereford markets.

4767. Mr. *J. Locke.*] Do you sell your hops to the hop merchants?—To the brewers and hop merchants.

4768. If you were nearer London would you send to the Borough?—I do not think they would let me do so; I never could succeed in selling in the Borough; their system is that they will not buy them beyond their individual friends and connexions.

4769. Do the planters employ particular merchants and factors?—I suppose they do; I believe it to be impossible for a Herefordshire or Worcestershire planter, unless he is connected with the trade, to sell hops in the Borough.

4770. Have you ever tried?—I have.

4771. *Chairman.*] What is the rent of the land upon which you grow hops?—From 1 *l.* to 1 *l.* 10 *s.*

4772. What is the extraordinary tithe rent charge?—Six shillings an acre round the neighbourhood, and one farm where I grow them is tithe-free.

4773. Is that the general tithe of the land in your district?—Yes, thereabouts.

4774. Is there any hop land let at a higher price?—None whatever.

4775. What sort of soil is it that you grow your hops upon?—A stiff clay.

4776. What kind of hops do you grow?—The Cooper's white, the Canterbury grape, the Mathern white, the grape, and a small quantity of Jones's.

4777. You do not grow any Goldings?—No, I do not.

4778. Nor any Colegates?—There are a few grown in the neighbourhood, but very few.

4779. Is there any portion of the Hereford collection in which the cultivation of hops is carried on on the system described by Mr. Smith, of planting the hops in among other plants?—I never saw it done.

4780. Is it the practice at all in the Hereford collection, so far as you know?—Some years back it was the practice, and it may possibly be so now, in an instance or two; but I could not call it to mind; I do not know any instance.

4781. Is it not the general custom?—No, certainly not.

4782. Sir *John Shelley.*] They are only planted among young trees?—Yes; and that at present is very rare.

4783. *Chairman.*] What do you consider the expense of manual labour in the cultivation of an acre of hops?—I do not know that I am prepared to answer that question, and to take the manual labour from the general cultivation of it.

4784. Mr. *J. Locke.*] Do you mean to say that you could not employ a factor in the Borough, to sell your hops?—I am not aware of it.

4785. Have you ever tried it?—I have; I went upon two occasions, and I was so disgusted with the whole affair that I would not come again.

4786. What was it that disgusted you?—I could not sell them.

4787. Did you take any samples?—I did.

4788. Did you go to a merchant or did you go to a factor?—I went to both, and to the brewers too.

4789. The brewers would not have anything to do with your hops?—No, they would not look at them.

4790. Was that because they knew nothing about you?—Yes.

4791. Is not it your opinion that the hop merchants and brewers buy from the factors?—Yes, I suppose that they do.

4792. Are not the factors commissioned to sell the hops of the farmers?—I suppose so.

4793. Are the merchants in the habit of buying from the farmers for the brewers?—I do not know.

4794. All you know is that you came with some samples, and that you could not sell them?—I could not.

4795. Were you introduced to anybody?—Yes.

4796. Mr. *Knight.*] Were you offered what you thought much below the market price, or would they not have them at any price?—They would not have them at any price.

4797. Mr. *Bass.*] Have not you a local trade more than anything?—We have.

4798. So that you are not so much affected by the London market, as the hops in Kent and Sussex are?—I should imagine not.

4799. Mr. *J. Locke.*] As a rule, I believe the hops of your county are not sold in the Borough?—They are not sold by the planters into the Borough; I do not know what becomes of them afterwards.

4800. Do not you sell them in your own locality?—They are sold principally at Worcester and Hereford.

4801. Mr. *Knight.*] Was the market very flat at the time you took your hops to try them in the Borough?—Not particularly so.

4802. Could you have sold them at Worcester or Hereford?—I could have sold them at Worcester or Hereford; but I thought perhaps I might find a better market in London.

4803. Mr. *J. Locke.*] You went to London to get more for your hops?—Yes, of course I did; we are all anxious to do that.

4804. And you took them back again?—Yes.

4805. *Chairman.*] Could you give the Committee an account of the items that make up your cost of production?—Yes, I have a statement of them.

4806. Will you put that statement in to the Committee?

[*The same was handed in, and read as follows:*]

EXPENSE of Cultivating an Acre of Hop-ground.

	£.	s.	d.
Ploughing and dressing	–	15	–
Polling	–	15	–
Tying	–	9	–
Hoeing	–	5	–
Scuffling and harrowing	1	10	–
Moulding up	–	12	–
Average cost of poles	5	–	–
Stripping and stacking	–	8	–
Manure	5	–	–
Rent, tithe, and taxes	2	5	–
Interest of capital	2	–	–
£.	18	19	–

4807. Which is the prevailing custom in your district; plouging down or hoeing down?—Ploughing down is the prevailing custom, but I dig a portion of mine.

4808. Can you tell the Committee the difference between ploughing and digging?—It is about 10 *s.* an acre.

4809. Do you consider that you cultivate much more expensively than those in your neighbourhood?—More so than the generality, but not more so than some of my immediate neighbours; the locality in which I am is as favourable for the production of hops as almost any land, and yet not very valuable for other purposes.

4810. Mr. *Brand.*] What are the weekly wages of labour in your neighbourhood?—At the present time they are 2 *s.* and 2 *s.* 6 *d.* a day for the men, and in our neighbourhood a great many of the men have cottages at a very cheap rate upon the estates.

4811. *Chairman.*] How long do the plantations of your hops generally last?—There are plantations in our neighbourhood that are as old as I can remember, but generally they last perhaps 20 or 30 years.

Mr. *W. Taylor.*

9 July 1857.

4812. Sir *Edward Dering.*] Do you consider the marking of hops very desirable?—Certainly; most desirable.

4813. Both to buyers and sellers?—Yes, if I take pains to get the best sort of hops, and to get the best samples I can, I should like it to be known to the public at large, to get the best price.

4814. Mr. *Bass.*] Are you in favour of the present duty being continued?—I am.

4815. Do you think it restricts competition to some extent?—I do not know that it does.

4816. Would more hops be grown in our country putting foreign competition out of the question if the duty were removed?—Not that I am aware of. If the present Customs duty were retained and the Excise duty taken off, of course there would be a tendency to increase the plantations.

4817. Then, in point of fact, the Excise duty does limit plantation to some extent?—I think it limits it; I should not cultivate hops longer than it paid me: if it ceased to pay me I should discontinue it, in the same way as any other branch of my business; I should not go on with it longer than it would pay me; if it would not pay me, then I should turn to something else.

4818. You said just now the credit given by the Revenue department was of advantage; do you think that credit has enabled some men to grow hops who could not do so otherwise?—It must be of some advantage to men of limited capital.

4819. Is that the general character of the planters in your county?—No, I think not.

4820. If it is an advantage to a man of small capital, is it not a disadvantage to a man of large capital?—I do not see that.

4821. Mr. *B. Blakemore.*] As to the system of cultivation, do not you consider the Excise duty is a fixed charge?—We do.

4822. And you are able to calculate it because it is so much upon every pound?—Yes.

4823. It is a certain amount charged upon the hops you grow?—Exactly so.

4824. *Chairman.*] Do not you grow the best kind of hop?—Yes, I do.

4825. What is the difference in price between the best kind of hop and the worst kind of hop that you grow; supposing that the best kind of hop were worth 100 *s.*, what would your cheapest kind be worth?—About 80 *s.*

4826. About 20*s.* would be the difference?—Yes.

4827. Does any one kind of your hops produce a much larger crop than the others?—Yes, I believe the Colegate's produce a vast crop, but I have not grown any Colegate's.

4828. Which of the different kinds of hops that you grow produces the most?—The Cooper's whites produce the greatest crop that I have, and the Jones.

4829. How many cwt. per acre will they generally produce more than any other hops?—I do not know that; they vary much in my land. There is no great difference in the sorts that I grow.

4830. Mr. *B. Blakemore.*] Do you sell all your hops at Worcester?—Nearly so; not all.

4831. Have you any railway in your neighbourhood?—Yes, in the immediate neighbourhood.

4832. Do you send your hops by team to Worcester?—Generally.

4833. What does it cost you?—About 1 *s.* a pocket; not quite 1 *s.* a cwt.

4834. *Chairman.*] The Worcestershire hops are sold in the Worcester market?—Principally they are.

4835. Have you ever seen any foreign hops selling in your neighbourhood?—Yes, I have.

4836. In what year was that?—In 1854.

4837. Have you seem them frequently?—Not frequently.

4838. Were they selling them at a much lower price than you could afford to sell yours at?—I cannot tell at all the price they were sold at.

4839. Did not you inquire?—No; or if I did, I do not remember it at present, I considered them first-class hops, very badly managed; I considered that they would have been quite equal to my own, or even better, if they had been equally well managed.

Mr. *Ben Nichols,* called in; and Examined.

4840. Mr. *Beach.*] ARE you a cultivator of hops at Farnham?—Yes.

4841. To what extent are you a cultivator?—I have 18 acres.

4842. Have not you land in several districts?—Yes.

4843. How much do you cultivate altogether?—I can hardly tell you; I grubbed 13 acres at Aldershot last year, and 40 acres belonging to my family at Seal; I have the management of them; I grubbed 12 acres there last year; I have 18 at Farnham now under my hands.

4844. What is the nature of the soil at Farnham?—I cannot explain it to you geologically, but there is rock on one side, and sand on the other, and there is a sort of wash-soil between the two where the best hops are grown.

4845. What kind of hop do you cultivate?—I cultivate at Farnham the best sort of white bine.

4846. Are there any Goldings on your land?—I believe they are pretty much the same thing.

4847. The white bines you consider quite first-class?—Yes; I do not think it would answer to grow anything but the best sort of hops on my land at Farnham.

4848. Mr. *Brand.*] What is the rent of land in your district?—It varies exceedingly; I have some land that I have been offered 25 *l.* an acre for, upon a lease, by a most responsible tenant.

4849. Was not that orchard ground?—No, it is hop land; I have been offered 25 *l.* a year for it for a lease.

4850. Mr. *Beach.*] Is that close to the town of Farnham?—It is close to the town of Farnham; Mr. Paine, who has the land adjoining, has been offered 25 *l.* an acre for his, as he told me yesterday.

4851. How do you estimate the expenses of cultivating an acre of hops?—They are almost incredible; but I have taken them out of my books; and I have also taken them out of Mr. Paine's books.

4852. Will you give the Committee your own estimation?—This is my estimation, up to picking (*producing the same*). I cannot give the estimate of the carting accurately, because I send teams in from Aldershot; but it is certain that it would be 1 *l.* 5 *s.* an acre. I should say, this is joint property of my brother's and my own. With regard to poles, we use only 18 and 20 feet poles, when we can get them; I have put them at 7 *l.* 10 *s.* an acre; the repairs, interest of capital, and rent of kilns, I have put down nothing for.

4853. Will you hand that estimate in to the Committee?

[*The same was handed in, and read as follows:*]

Expenses per Acre of First-Class Hop Land up to Picking.

	£.	*s.*	*d.*
Manure	9	–	–
Carting, dung, &c. &c.	1	5	–
Poles, 18 feet	7	10	–
Labour	7	–	–
Tithe rentcharge	2	2	–
Rates	3	10	–
	29	17	–
Rent	25	–	–
£.	54	17	–

Repairs – to be added.
Interest on capital ditto.
Rent of kilns – ditto.

4854. Sir *Edward Dering.*] What description of rates do you pay?—Poor rates, and highway rates, and church rates.

4855. Mr. *J. Locke.*] What period are you calculating them for?—For one year.

4856. Was there a church rate in that year?—Yes.

4857. Is there always a church rate?—Yes; we always have a church rate; the best land is rated at 15 *l.* and 16 *l.* an acre; Mr. Paine's rates and taxes come to 4 *l.*

Mr. *B. Nichols.*

9 July 1857.

4858. Mr. *W. Martin.*] Have not you land-tax?—We have a land-tax, which I omitted to put down here, upon some of this land.

4859. That estimate does not include the land-tax?—It does not include the land-tax.

4860. What do you put for rent?—I have put the rent at what I have been offered, namely, 25 *l.* an acre; this relates to a piece of land called Timber Close, which is 6½ acres of ground.

4861. Mr. *Brand.*] Is there much of this extraordinary land in the neighbourhood of Farnham?—Not a great deal of that kind of land, but a good deal of land peculiarly adapted for the growth of hops.

4862. Sir *John Shelley.*] What extent of produce do you look to get?—It is as uncertain as possible.

4863. Mr. *Beach.*] Will you give us Mr. Paine's estimate?—This is a piece of land called Timber Close that I am especially referring to now. Now I will give Mr. Paine's estimate of 1854; Mr. Paine is very ill, or else he would have been here himself; he could have gone into it much better than any one else; I have a statement here which I have taken out of his book.

4864. Will you hand that statement in to the Committee?

[*The same was handed in, and read as follows*:]

Mr. *Paine's* Account.

	£.	*s.*	*d.*
210 Acres.			
1854—Manure cost	1,951	–	–
Cartage for all hop-ground work	244	–	–
207 Acres.			
1855—Manure cost	1,488	–	–
Cartage	291	–	–
Labour	1,862	–	–

Mr. *Paine's* Expenses of Cultivation.

	£.	*s.*	*d.*	
Poles	7	–	–	
Dressing	8	–	–	
Labour	8	–	–	
Rates	4	–	–	These items refer to the "Heart" hop-grounds.
Tithes	2	2	–	
£.	29	2	–	

Carting to be added.
Rent - ditto.

4865. Mr. *B. Blakemore.*] Are those expenses previous to the picking and managing?—Yes; except the cartage of manure that he put on before the picking.

4866. You do not include the expense of picking in this?—No.

4867. Can you tell the Committee what is the cost per cwt. of picking the hops and drying them, and paying the duty?—In some years it costs much more than it does in others; it depends upon the crop.

4868. Can you give us the average cost?—No, I cannot.

4869. Respecting your mode of picking, do you pick them all in one sample, or do you divide them according to their quality?—No, I do not think we sort them; if we had any that were damaged by wind or anything of that sort, we might separate them, but ordinarily we do not.

4870. Is it not usual to do so?—Not unless we have a rough time, and then we should do it.

4871. *Chairman.*] Cannot you tell the Committee what the expenses of picking and drying amount to per cwt.?—No they vary so much that I cannot give it accurately; I have paid 6 *d.* a bushel for picking, and I have paid 3 *d.* and 2 *d.*

4872. What does that depend upon?—It depends upon the crop.

4873. In which year do you pay most for picking; in the year of a large crop or a small crop?—With a large crop you pay a smaller sum per bushel, and with a small crop you pay a larger sum per bushel.

4874. Mr.

4874. Mr. *W. Martin.*] Would not that tend to equalise one picking with another?—It might.

4875. Sir *John Shelley.*] In a large crop is not there a larger demand for pickers than there is in a small one?—Yes, I should think there is.

4876. If there is a greater demand for pickers, ought not the pickers to have more instead of less?—In the year when there is a large crop they will earn as much as in a small crop year; we are obliged to pay them so that they shall have sufficient earnings to induce them to leave their homes.

4877. The larger the crop the more you pay the pickers, without reference to the supply?—If there is a short supply, we must pay enough to get them to come.

4878. If there is a larger crop you may be short of pickers?—Yes.

4879. And then you would have to pay a larger price?—Yes.

4880. *Chairman.*] Can you tell the Committee what the expenses of drying are per cwt.?—No, I cannot; I know there is some estimate of so much a cwt. for picking and drying and duty, but I think it is a very rough one.

4881. What is it?—Fifty shillings, but it is a very rough estimate; I know they cost more sometimes.

4882. Do you think that the cost may be sometimes as low as 40 *s.*, and in another year as much as 60 *s.*?—Charcoal is very dear around us, and labour is dear.

4883. What are your wages?—We give high wages to the dryers. I think we give as much as 25 *s.* or 30 *s.* to the head dryer; I am not sure; and I think it is 1 *l.* to the second dryer in each kiln; but I am not sure about that.

4884. What are the general wages of labour?—For day-work, 2 *s.* a day. We do most by task-work; almost all our work is done by task-work.

4885. What sort of hops are yours?—The white bine.

4886. Is that the only kind of hop that you grow?—Perhaps we may have a quarter of an acre of what are called grape hops; but I believe that is all in Timber Close; that is the most valuable land we have. In the country we have green bines.

4887. Is the white-bined hop the best kind of hop?—Yes.

4888. Which comes next; the green bine or the grape?—I think the green bine comes next.

4889. Is there any difference in those hops as to their liability to blight?—I cannot tell; I do not know that there is.

4890. Where are your hops mostly sold?—They are mostly sold at Weyhill fair.

4891. Are they sold there direct to the brewer, or to whom are they sold?—I know that the brewers buy some, and the merchants some, and the factors some.

4892. Do the factors attend Weyhill fair?—Yes, I believe they do.

4893. Do the factors from the Borough attend there?—Yes; there are a good many gentlemen from the Borough at Weyhill fair, and some of the first merchants.

4894. Is any large portion of the Farnham hops sent in the first instance to the Borough to be sold?—There are occasionally a few, but, I think, not many.

4895. Do you think that the great proportion are sent to Weyhill fair, and are sold there direct to the merchant or the brewer?—Yes, I think so. Of course there may be some speculators; but they are sold there generally, as far as I know.

4896. Does not the grower take them to Weyhill fair, and there they are disposed of?—They are open to any one to purchase.

4897. Do the Farnham hops ever remain unsold?—Yes, sometimes.

4898. Does that often happen?—If we ask more money than the merchants choose to give us, we take them home again.

4899. Do you often find that you cannot obtain a remunerative price for your hops?—Last year, I think, we lost our rent; if we had had to pay rent, we should have had nothing to pay it with; we should have had to pay it out of capital.

4900. How much did you say that that rent was?—For Timber Close I have been offered 25 *l.* an acre.

4901. Have you ever known an instance of hops being left ungathered?—I remember that a few could not be got in; I think that was the case in 1855, but I am not aware that that was the case at any other time.

Mr. B. Nichols.

9 July 1857.

4902. Sir *John Shelley.*] Is there any quantity of land that lets at 25 *l.* an acre in your district?—Not a great quantity; I have seven acres, and Mr. Paine has some adjoining, for which he has been offered the same sum.

4903. What sort of land is that?—It is first-rate ground.

4904. Is there much of that first-rate ground?—There is not much of that kind of ground, but there is a great deal of very good land indeed, as the rents would show, in Farnham and the neighbourhood.

4905. Mr. *W. Martin.*] What is the more usual rent about there?—It varies exceedingly. I know some let at 20 *l.*, and I know some at 15 *l.*, and some at 12 *l.* and 5 *l.*

4906. Do you know any at 12 *s.*?—No, I do not know any at 12 *s.*

4907. Mr. *Knight.*] Is the land let at 20 *l.* and 25 *l.* hop garden in full bearing?—Yes; it has been hop ground for hundreds of years.

4908. Mr. *Beach.*] What is the largest crop you have ever grown?—I cannot recollect; I believe it was in 1855; but I remember that in 1846 we got about 23 cwt. an acre.

4909. Do you often grow nearly as much as that?—Not often.

4910. What do you consider a fair crop?—I cannot say; we try to get as many as we can.

4911. Do you often grow a ton per acre?—No, not very often.

4912. Do you often grow 15 cwt.?—I believe we often do that.

4913. *Chairman.*] Have you ever heard of 600 *l.* being offered as the price of an acre of land near Farnham?—I think I have given more than 500 *l.* myself; but that was only for one acre.

4914. I think I understood you to say that the tithe rentcharge was two guineas per acre?—The extraordinary charge is 30 *s.* and the ordinary charge is 12 *s.*, which brings it up to two guineas.

4915. Are there any other hops besides Farnham hops sold at Weyhill fair?—Yes, the hops from the localities round are sold at Weyhill fair.

4916. Are the hops from the Alton district sold there?—The hops from Alton, Seal, Crondall, and Bentley, and Binstead, and so on, are sold there.

4917. Have you ever seen any Farnham hops selling at Weyhill fair?—No; I have seen a sample of foreign hops exhibited there.

4918. Is not there an acre at Weyhill fair kept up where Farnham hops are sold?—Yes.

4919. Mr. *W. Martin.*] Do you pitch the hops that are sold at Weyhill fair, or take samples?—We have sold to the same parties for many years, and we take perhaps 20 pockets and sell by that.

4920. Mr. *Beach.*] What is your view of the Excise duty?—It is a subject that I have not paid much attention to.

4921. Do you wish it to be taken off, or diminished, or to continue?—As far as I understand the matter, I think it had better remain as it is.

4922. *Chairman.*] Why do you think so?—First of all on account of the precarious nature of the crop, and in the next place on account of the enormous expenses we are at in their cultivation, and any change would throw a great quantity of labour out of employment. I am a free trader, but from the nature of hops I think they are an exception to the rule.

4923. Sir *John Shelley.*] How would the manual labour be thrown out of employment?—A great deal of the hop ground must be thrown out of cultivation.

4924. That would only happen, provided foreign competition is established?—Yes; if foreign hops come in free, some of the hop ground must be thrown out of cultivation; I am satisfied of that.

4925. *Chairman.*] Would not the circumstance of its being a precarious crop, rather be a reason for the admission of foreign hops to equalise the supply?—I do not see that it would.

4926. Would not it be for the interest of the consumer that foreign hops should be let in?—I am not sure of that. I think the public is very well served now, and they are served as well as they would be under foreign competition.

4927. Mr. *Beach.*] Have you ever seen any foreign hops?—A gentleman showed me a sample of some Bavarian hops at Weyhill fair, and I have seen samples of Belgian hops.

4928. What do you think of the Bavarian hops?—A gentleman who showed them to me, told me that he could buy them for less than half what I was asking for

for mine; but he bought mine notwithstanding, and I am rather doubtful whether he could get them at that price.

4929. Sir *John Shelley.*] Those hops, which were saleable at half the price, did not come into competition with yours?—He showed me a sample, and said that he thought he could buy them at a certain price. They were very beautiful.

4930. Mr. *Beach.* Was the quality good?—It appeared so; but the gentlemen of the Borough would tell you more about that than I can.

4931. Sir *John Shelley.*] Did the gentleman of whom you have spoken show you that sample of Bavarian hops before or after the bargain was struck?—Before He had been to Bavaria, and he brought them home with him.

4932. Did he endeavour to buy at less money than you asked?—We never can quite agree in the first few words about the price. All I want is to ascertain the value of my hops, and I will let him have them for that. He has bought them for 25 years.

4933. Could the sample of Bavarians which he showed you have come the character of "scarecrows"?—They appeared to me to be good; but I am not a good judge.

4934. But they did not frighten you enough to induce you to take a lower price?—No.

4935. Mr. *Knight.*] What year was it in which that took place?—I think it was in 1854.

4936. Had he of whom you spoke been to Bavaria to inquire the price of foreign hops?—I think so.

4937. The Committee have been informed that, since 1854, the production of foreign hops has increased 25 per cent.; may not the inquiry for foreign hops which arose in that year have been the cause of that increase?—I should think so.

4938. May they not soon have a great quantity of foreign hops to supply this market?—I think so.

4939. *Chairman.*] Are the Farnham hops the highest priced in the market?—I think there are some East Kent hops which are quite as high priced as the Farnham hops.

4940. Has there ever been any distress in the hop-growing district around Farnham arising from the failure of the crop, or from the over supply of hops, or from any other cause connected with the cultivation of hops?—We cannot do so well at one time as we can do at another.

4941. Have you ever had a season of distress in which you have been to the Chancellor of the Exchequer, to apply for a postponement or reduction of the duty?—Not that I am aware of.

4942. Mr. *Knight.*] Do you think that even the most favoured districts would not be able to compete with foreign hops?—I am not quite sure they could not.

4943. What do you think would be the effect of free trade upon the less favoured districts, such as Sussex and the Weald of Kent?—It would throw them out of cultivation.

4944. Mr. *Brand.*] Has the cultivation of hops increased in your district lately?—I think in the last year or two it has diminished; I have grubbed some hops myself.

4945. Sir *John Shelley.*] What is the duty upon foreign hops?—Forty-five shillings.

4946. Is that such an amount that if it were taken off the foreign hops could be brought in so much cheaper that you are afraid of the result?—No doubt I should have the first blow; my labourers would have the second, and the public the third.

4947. Would it be much of a blow to you?—It would bring down the price of my hops directly.

4948. Supposing your evidence to be correct, and that the effect of foreign hops coming in would be to throw the Wealds of Kent and Sussex out of cultivation, and thus substitute foreign competition for Kent and Sussex competition, could that affect you?—Assuming that the duty were taken off, a great amount of foreign hops would come in.

4949. Would not the effect of the 45 *s.* being taken off be to put you in competition with the foreigner instead of with the Wealds of Sussex and Kent?—We should have another competition.

4950. Then would the hop land in Sussex and Kent go out of cultivation?—A

Mr. *B. Nichols.*

9 July 1857.

good deal of it must go out of cultivation, but there would be hops grown there still.

4951. Mr. *Beach.*] Would not it throw the bad land out of cultivation?—All the inferior land must go out of cultivation, and a good deal of the best land.

4952. *Chairman.*] When you say that the foreigner can grow hops cheaper than the English grower, do you speak from your own knowledge?—I have heard, and I believe, that they can be brought in at a very low price.

4953. Mr. *Knight.*] The Committee have been informed, that supposing the Excise duty were off, the lowest price at which English hops could be profitably sold is about three guineas. Is that your opinion?—I do not think they could grow hops profitably at three guineas.

4954. If it is shown that foreign hops could come in without the duty at a less price than that, would not you conclude that free trade would have the effect of stopping the growth in England?—Yes, it would reduce the quantity of hops very materially.

4955. Would not it throw lands out of cultivation, if the hops could be brought in from a foreign land, at a less price than they could be grown in England?—Yes.

4956. What is the highest extraordinary tithe that you ever heard of as being paid?—I think I pay the highest; I pay 30 *s.*; I do not know any higher.

4957. What do you consider a fair price to be obtained for your hops?—It varies according to the crop. In a large year we should have low price.

4958. Do your hops always realize a good price, compared with the inferior sorts of hops?—There is not so much difference between them as you would think.

4959. Could you give the prices that you have realized for the last few years?—No, I could not.

4960. *Chairman.*] Is there any list annually published of the prices at Weyhill fair?—Not that I am aware of.

4961. Could you procure such a return for the Committee?—I do not think I could.

4962. Could not some of the country merchants, who buy at Weyhill fair, furnish such a return?—They could tell what price they bought at.

4963. Do you know whether the London factors attend Weyhill fair?—The dealers and buyers, and merchants, I think, do attend generally; or at least a great many of them; I think all the first houses, or nearly all, attend there.

4964. Mr. *Brand.*] You have stated that you grubbed a considerable quantity of hop ground?—Yes.

4965. Was that the high quality of land paying 25 *l.* an acre?—No.

4966. Mr. *Beach.*] Is not the farm at Aldershott a very different soil to that at Farnham?—Yes, it is very good farming land; and I thought it would pay me better for farming than for hop growing, now that the price of hops is so low.

4967. Mr. *Brand.*] I presume that that land would not pay such a rent as 25 *l.* an acre, except for hop land?—No; and nobody in his senses would think of grubbing the Timber Close land.

4968. Mr. *Knight.*] Are not a great many hops from Farnham sent into London, and sold by the factors?—I should think there are; I have never done so myself.

4969. *Chairman.*] Do you know Mr. Paine?—Yes.

4970. Has he very much reduced his plantation lately?—He has reduced it. He told me how many acres he had grubbed, but I forget.

4971. Has he grubbed any large amount of his land?—I think as much as 30 or 40 acres.

4972. For what reason?—Because hops are very low.

4973. Is he a large grower?—Yes; his quantity of hop land was 207 acres in one year, and 210 in another.

4974. Do you know whether Mr. Paine's hops are sold through a London factor?—I believe most of them are. He sells some at Weyhill fair; but I cannot tell you how he sells. He comes to Weyhill fair, as all the rest of us do, and sells what he can there.

4975. Mr. *Beach.*] Have you had any meetings at Farnham to consider the propriety of making any alteration in the duty?—There was a meeting, but we could come to no resolution, because we did not know what was going on here.

4976. Sir *Edward Dering.*] From your knowledge of the hop growers in your neighbourhood, do you think that they wish for any change?—I do not think that

that they do; I speak for myself; but I do not think they wish for any change; certainly, I never heard them express such a wish.

4977. Was there no expression of opinion upon the part of that meeting?—We did not know what was going on here, and therefore we could not pass a resolution on a subject which we did not know anything about.

4978. Do you think that any change in the present law would benefit you?—I do not wish for any change, and there was no wish for any change expressed at the meeting.

4979. Is it the general opinion among planters that they would rather have things remain as they are?—Yes.

4980. Mr. *Brand.*] You are well satisfied with the state of things, because your land pays 25*l.* an acre?—Yes; I am a free trader, but I do not approve of free trade in hops.

4981. What was this meeting called for?—Mr. Drummond wrote me a letter to ask me what the opinion of the people was, and as we did not know what the feeling of the people was, we called that meeting that we might ascertain it; but we did not know what was going on.

4982. Was there no resolution put to the meeting?—No; the only resolution was to the effect that we would wish that whatever alteration was made, the name of the grower, the parish, the county, and the year should be put on the pockets, in order to prevent fraud.

4983. Sir *Edward Dering.*] Do not you think that it is a matter of paramount importance that the name of the grower and of the parish should continue to be affixed to the pocket?—Yes; we hold it to be of great importance.

4984. *Chairman.*] Could not you do that without an Act of Parliament?—No; I think that persons would put the hops grown in one district into the bag marked for another district. I think that is a fraud, and they ought to be punished for it.

4985. Mr *B. Blakemore.*] Supposing the duty to remain as at present, do you approve of the time of its collection?—I have no objection to that.

4986. You do not think that the system of giving long credit operates injuriously?—I have nothing to say about it one way or the other; I am satisfied with it as it is.

4987. *Committee.*] Is not it the fact, that you find hop growing such a profitable business that you do not wish any alteration?—I have not said that; I say that I lost my rent last year.

4988. Sir *Edward Dering.*] Do you think that the present system works well?—I do not see that it can be improved.

4989. Mr. *B. Hope.*] You say that at that meeting there was an expression of opinion with reference to marking pockets?—Yes.

4990. Was no opinion expressed as to the duty?—No; and I assigned as a reason for our not going into that subject, that we did not know what was going on; we had heard that there was a Hop Duty Committee being formed, but we did not know what alterations they wished to make.

4991. May the Committee understand that you do not know what is the opinion of the growers in your neighbourhood with respect to the alteration of the duty?—I think that the majority of them would be content to let things alone.

Mr. *Isaac Mannington*, called in; and Examined.

4992. *Chairman.*] ARE you a hop grower in Sussex?—I am.

4993. In what part of Sussex?—Waldron.

4994. Is that in the Weald of Sussex?—Yes.

4995. For how many years have you been engaged in hop growing?—Upwards of 40.

4996. What is your opinion as to hop growing in the Weald of Sussex generally. Do you consider that it is a profitable business?—Taking the average of years, I think that it is.

4997. Do you think upon the whole it pays as well as other crops?—It pays better than other crops.

4998. Has there been a meeting of the Sussex hop growers upon the subject?—There has.

4999. Do you suppose that they are anxious for a reduction of the duty?—I hardly know what to say. There are many I think who find it difficult to pay the duty.

Mr. *I. Mannington.*

9 July 1857.

5000. Do you think that the Sussex growers have always received the money for their hops when the duty becomes due?—No. When the crop has been large and the prices very low, many growers hold their hops.

5001. Do not you think that in such years as this, the duty is a serious evil?—Taking the average of years, I do not think it is. I think they find an inconvenience when the crop is very large and the prices consequently low.

5002. In this year, is not the duty a burden upon them?—Certainly it is.

5003. Have they not, therefore, in this year some real ground of complaint?—No, I do not think that they have real ground of complaint, because, taking the average of years, I think the duty has been beneficial; but still in large growing years, I have no doubt that many find great difficulty in paying the duty when hops get down to 45 *s.* and 50 *s.* a cwt.

5004. What benefit does the duty bring with it that makes up for the evils which it entails in an abundant year?—I suppose that if the Excise duty were done away with, the Customs duty, by which we are getting about 27 *s.* a cwt. would likewise be repealed.

5005. Supposing you could get rid of the Excise duty alone, the Customs duty remaining as it is, what should you think of that?—I do not think it would do any good; we should have a great many more hops planted, and that would reduce the price.

5006. Mr. *Knight.*] Do you think that the Excise duty is paid by the grower?—I do not.

5007. By whom is it paid?—By the consumer.

5008. Therefore it does no harm to the grower?—Upon the average of years, I believe it does not.

5009. Sir *Edward Dering.*] Do you think that it is the fact that it does not come out of the pocket of the grower, but out of the pocket of the consumer?—Upon the average of years, I think that is the case; but there are exceptions.

5010. *Chairman.*] How many years should you think it takes to make hop growing pay?—I should take an average of 10 years.

5011. Do you think that though a man may suffer heavy losses some years, yet if he can go on long enough, he will get a year that will compensate him?—I have always found it so.

5012. Mr. *Knight.*] Is it not probable that if the price of hops were reduced by foreign competition, the grower would not get that compensating year?—I fancy that he would not; we get the greatest profit upon hops by keeping them when there is a heavy crop. After a heavy crop or two, there generally comes a short crop; but I fear that if Customs duty were taken off, we should not have speculators in the market to take off the hops.

5013. Have not you found that a large crop of hops far from being a disadvantage, tends to the greatest profit, if you have sufficient capital?—I have found it so.

5014. It is only those who have a small capital who are obliged to force the hop market?—Yes.

5015. When you have kept your hops, have you found the weight decrease?—Yes; I have kept some nine years, but not to advantage.

5016. Do you find the weight decrease sensibly by keeping?—If the hops get crusted.

5017. Mr. *B. Hope.*] What did you get for the hops you had kept nine years?—Thirty-six shillings per cwt.

5018. The quality of them had not improved by keeping?—I think not.

5019. Mr. *Beach.*] How long can you keep hops before they begin to decrease?—I do not think they are so good after the first year; it depends upon the quality of the hops.

5020. What sort of hop will keep the best?—We grow the Colegates, the Jones's, and the Grapes. The Grapes and the Jones's, I should say, keep best; they are the best quality.

5021. Mr. *Brand.*] How much per cwt. will the hop lose in weight by keeping?—In the first instance they gain from the time of picking to the spring; if you were to weigh a pocket of hops when they were sold, you would find that they had gained six or seven pounds., but then after that they go back.

5022. What is the loss at the end of the year?—It depends entirely upon the quality of the hop, and how they are dried.

5023. Is it as much as 10 per cent.?—No.

5024. Is

5024. Is it five per cent. ?—No, hardly that; in fact there would not be a loss in the first year.

5025. Is not the loss very serious in subsequent years ?—It depends upon how they are kept; if they are not well kept, and get crusted, then of course the buyers strike off something from the weight.

5026. Can you tell what was the loss of weight upon those hops that you kept for nine years ?—There was no loss; they were sold at the Excise weight.

5027. Was there an actual loss of weight in them ?—I do not know.

5028. *Chairman.*] Do you think that it is quite fair that the Excise duty should be the same upon the high-priced Farnham hops and upon the cheap hops of Sussex ?—It certainly is rather hard upon the Weald of Sussex, but still I do not see how it can be avoided.

5029. Do you think that the benefits conferred by the Excise duty upon the whole are so great, that you would rather keep it as it is, than have it abolished ?—I would; but at the same time, I think that the five per cent. which was put on when the postage was altered, ought to be taken off. There was five per cent. added when the penny postage was established.

5030. If the Excise duty generally is beneficial, is the five per cent. particularly mischievous ?—I always thought it wrong to put on the hop growers more than they profited by the alteration of the postage.

5031. If the consumer pays the duty, how could it affect the hop grower ?—For such a small addition as that, perhaps we did not make a difference in the price.

5032. Mr. *Brand.*] Do you state of your own knowledge that that five per cent. had any thing to do with the postage system ?—I have always understood that it had.

5033. Sir *Edward Dering.*] Have you ever turned your attention to the graduated scale which has been proposed to this Committee ?—I have not.

5034. Can you form any opinion as to whether it would work beneficially or otherwise ?—I cannot.

5035. Mr. *Knight.*] Do you think that hop growing is generally a profitable crop in the county you live in ?—Yes, if we take the average of years; sometimes it is quite the reverse.

5036. Upon the average, you think that the planters who grow hops are the better for them ?—If I did not, I should not continue to grow them.

5037. *Chairman.*] I think you told us that in some years some men lost heavily ?—No doubt of it.

5038. Do you think that those men go on growing in the hope of paying themselves back in other years ?—Yes.

5039. Though a man loses for one or two years, he might continue going on in the hopes of a return of a good year in his favour ?—Yes.

5040. Mr. *J. Locke.*] Supposing he never won it back, what would be the result ?—That is a case which is not likely to happen. Generally, if the price gets below what they can be grown at, a great many hops are grubbed.

5041. Supposing a man were to go on for nine years, and every year were to lose, would not he be bankrupt at the end of the nine years ?—Unless he had capital he must give it up.

5042. Mr. *Brand.*] What is the ordinary rent of land in the Weald of Sussex ?—I should say from 10*s.* to 20*s.* an acre.

Mr. *James Selmes,* called in; and Examined.

5043. *Chairman.*] ARE you a hop grower ?—Yes.

5044. For how many years have you been a hop grower ?—Twenty-seven years.

5045. How many acres of hops do you grow ?—About 40 acres.

5046. In what part of Sussex do you grow them ?—Just on the borders of Kent and East Sussex; I have some land in both counties.

5047. In what parish is your farm ?—In Northiam.

5048. Is any part of your farm in Kent ?—Not any part of the farm where I reside; but I hold another farm in Kent; it is over the river, and there I have a few hops.

5049. So that you have the advantage of the Kentish m rk ?—For those hops which are grown in Kent; but I do not use it unfairly.

Mr. *J. Selmes.*

9 July 1857.

5050. Have you upon some of your pockets the Kentish mark?—I have.

5051. Do you find any difference in the price of your hops, according as they have the Kentish or Sussex mark?—Yes; this year it has amounted to from 2 *s.* to 3 *s.* per cwt.

5052. Were the hops on the Sussex side as good as the others?—Yes.

5053. Do you think that in that respect the mark operates unfairly to Sussex?—Those hops that are marked "Kent" will generally fetch a little more, namely, from 2 *s.* to 3 *s.* a cwt., as far as my experience goes.

5054. Mr. *W. Martin.*] Although the farms are only separated by a stream of water?—They are not exactly adjoining the water, but a short distance apart; in fact, I have no hesitation in saying that the Sussex hops are the best of the two.

5055. *Chairman.*] Is the soil that you grow hops upon Wealdon clay?—Mine is, generally speaking, a light soil, with sand and gravel underneath; a very fine soil, if highly cultivated, but not more than five or six inches deep.

5056. Is not it land that requires drainage?—Yes, almost the whole of it.

5057. What is the rent of the land?—About 1 *l.* an acre; some of it more. We grow hops upon some of the poorest part of the farm.

5058. What sort of hops do you grow?—The Grapes and Jones's, and some few Colegates.

5059. You do not grow the Goldings?—No; they get mouldy with us.

5060. Have you tried them?—My father tried them, but they would not do. After a few years they got mouldy.

5061. As far as your experience goes, do you think that in the long run the cultivation of hops pays as well as the cultivation of other crops?—Yes; as far as my experience goes it has paid me rather better than anything else.

5062. Is it not a very uncertain crop from one year to another?—Very much so indeed.

5063. Is it of any use for a man to embark in the cultivation of hops unless he is prepared to go on for a series of years?—I should say not; because he may be unfortunate, or he may be lucky, it depends upon circumstances.

5064. Do you think, upon the whole, that the duty is a benefit or an injury to the grower?—I do not see that it is any benefit, but I think that the import duty is a very great benefit.

5065. You do not agree with some of the witnesses who have been examined before this Committee, that the Excise duty is a benefit in itself?—I do not see why it should be; I believe that the plantation would be increased if there were no Excise duty, and we might get into the same situation which we are in now; over-production might bring down the prices exactly in the same manner as it does at the present time.

5066. Are you suffering from over-production now?—We have had two heavy crop years; the year before last was such an extraordinary year that it filled the market with hops which we have not been able to get rid of since.

5067. Do you think that the Excise duty is a matter of importance to the grower?—I would certainly rather be without the Excise duty, provided the Customs duty remains as it is.

5068. Did you find any sensible difference in the price of your hops when the Customs duty was reduced from 4 *l.* 10 *s.* to 45 *s.*?—It had an influence at first, in the year 1849; but since that time we have grown such an amount of hops that we have not had extreme prices.

5069. Have you found foreign hops coming into this country disastrously to you?—No; I think that 25 *s.* is such a protection to us that we have not been injured to any serious extent, except in the year 1854, when the duty was lowered (unfairly, as I think,) to 1 *l.*

5070. Do you consider that the differential duty of 25 *s.* is an efficient protection to you?—Yes.

5071. Do not you think that in some respects the foreigner pays his duty under more favourable circumstances than the home grower pays his duty?—Yes; because he can bond the hops in this country, and he is not obliged to pay the duty at once as we are.

5072. Is it not the case that you have to pay the duty whether you sell your hops or not?—Yes, certainly.

5073. Did you suffer seriously in 1854 from the reduction that was made in the Customs duty in that year?—It certainly had some little effect upon the market,

market, but I have no doubt that exactly the same quantity of hops would have come in if the 45 *s.* had been retained, because the price of this kind of hops at that time would have warranted it.

5074. How did the reduction of duty affect the prices if the supply was not increased?—It had an influence upon the supply at first. I do not think that any more hops came into this country, but there was a dread of the hops coming in, and that influenced the market.

5075. Do you think that the influence upon the market was rather the effect of a panic than from the fact that there was a greater supply?—That was the way in which I viewed it.

5076. Should you be under any apprehension that the Customs duty might again be suddenly reduced in the event of a high-priced year?—I should hope not; but I cannot say what the Government may do. I think there is no occasion for it. Hops are not so important an article that it makes much difference whether the duty is 45 *s.* or 20 *s.* The price of hops in those years must rise enough under any circumstances to bring foreign hops in.

5077. Are you willing to continue the Excise duty rather than have the Customs duty repealed?—It is a question I have thought over very much, and I think it is a question of some difficulty whether we should continue the Excise duty and the Customs duty at the same amount as at present, or whether it would be better to have free trade altogether. The Excise duty is very heavy when the hops are very cheap. That is partly relieved by giving long credit; but from the reasons which have been explained I think that is generally an injury to the planter. Although it is a very comfortable thing to have the time of payment put off, still I think it rather encourages speculation. I should like to see half the duty off. If we could get off the war duty and let the Customs duty remain as it is, I believe that the planters generally would be perfectly satisfied; and I think that there would be no cause for any one to complain. Since the agitation has been started for free trade, I have attended no meetings nor taken any steps about it.

5078. Mr. *W. Martin.*] Has your attention been called to the scheme of an acreage duty?—Yes. I do not think that an acreage duty would be so fair a mode of levying the tax as the present mode. I grow large crops, and it would be very beneficial to me; but I do not think it would be so fair a mode of levying the duty as the present mode; because I think that in places where they grow a short crop, it would act very unfairly.

5079. Mr. *Knight.*] What is the comparative difference between the crops that are grown of the lower classes of hops and the crops of Goldings?—I should think there would be a difference of 5 cwt. per acre, but I am not positive about it, because I am not a grower of Goldings.

5080. The difference has been stated to be 2 *l.* an acre; do you think that it is more than that?—Yes, I should think so; there is a difference of 5 cwt. or 6 cwt. generally. In the years of blight there is not so much, but you must throw some of the total blights out of your calculation.

5081. Mr. *Brand.*] Are you speaking of the difference between the Golding and the Colegate?—I am speaking of the difference between the Golding and the Grape and the Colegate. We grow nearly as many Grapes as Colegates in our district. There is very little difference.

5082. Mr. *Knight.*] Do you think hop growing a profitable or unprofitable speculation?—I certainly consider it a profitable speculation.

5083. Sir *John Shelley.*] Is the Committee to understand that you would like things to remain as they are?—I would much rather have the war duty off than have things as they are.

5084. Mr. *Brand.*] Are you aware that that would involve a sacrifice to the revenue of something like 170,000 *l.* per annum?—Yes.

5085. Supposing that the Chancellor of the Exchequer is not willing to have any modification of the duty, would you rather have the present system at it is, than have both duties off?—That is a question that I am hardly in a position to answer. I should like to know a little more about foreign hops before I answered that question. From every information that I can get, I believe they would come into this country at about 40 *s.* per cwt.

Lunæ, 13° *die Julii*, 1857.

MEMBERS PRESENT.

Mr. Bass.	Mr. Knight.
Mr. Beach.	Mr. Locke.
Sir Edward Dering.	Mr. Wykeham Martin.
Mr. Dodson.	Viscount Pevensey.
Mr. Beresford Hope.	

JOHN GEORGE DODSON, Esq., IN THE CHAIR.

Mr. *George Oyler Thirkell*, called in; and Examined.

Mr. *G. O. Thirkell.*

13 July 1857.

5086. *Chairman.*] YOU are a hop grower, in Kent?—Yes.

5087. In what district of Kent?—I occupy land in seven parishes.

5088. Are they in different parts of Kent, or do they lie together?—Some of them are in Mid-Kent, and some are in the Weald of Kent.

5089. How many acres have you in Mid-Kent?—I have about 120 acres now.

5090. And how many in the Weald?—About 80 acres.

5091. What difference do you find in the cost of cultivation in Mid-Kent and the Weald?—It does not cost so much to cultivate in Mid-Kent as it does in the Weald.

5092. What is about the difference per acre?—About 3*l.*

5093. What is the cost of cultivating an acre in Mid-Kent?—Twenty-four pounds.

5094. And 21 *l.* in the Weald?—No; 27 *l.* in the Weald.

5095. I understood you to say, in the first instance, that it cost more in Mid-Kent?—No, it costs less in Mid-Kent.

5096. Mr. *Martin.*] Is that owing to the extra quantity of manure?—Yes.

5097. Is the breaking up of the clods and the price of poles more expensive?—It is heavier cultivation in the Weald.

5098. You have shorter poles in the Weald, have you not?—Yes; but the poles do not want so often changing on the hill; when we get them down below, they are able to be brought down on the other land, and placed to more advantage for poling hops requiring short poles.

5099. Sir *Edward Dering.*] Does draining form any element in that sum you have given?—Not in the 27 *l.*

5100. *Chairman.*] You have not included that?—No.

5101. The expenses of draining are heavier in the Weald than in Mid-Kent, are they not?—In general, in Mid-Kent there is no draining required.

5102. Sir *Edward Dering.*] Then it is principally the manure that makes it more expensive in the Weald than in Mid-Kent?—Yes, the manure and the general cultivation.

5103. What do you calculate the manure at an acre?—At from 6*l.* to 10*l.*

5104. Every year?—Yes, when it is done judiciously.

5105. *Chairman.*] Are you a supporter of the present scheme of high duties?—Well, I think some middle course should be taken; I think the standing-still system is very injurious, and I think to go for free trade is not what would be desirable for the Kentish planters.

5106. Which should you think the worst evil of the two, free trade or standing still?—I cannot agree to standing still, but I should not like to have free trade.

5107. If you might have which you liked, which would you prefer of the two?—If I were offered to take either, I would not take standing still.

5108. Sir *Edward Dering.*] You mean, you would prefer free trade to remaining as you are?—Well, I cannot say.

5109. Mr. *Martin.*] Which do you prefer, the acreage duty, or taking off the war

war duty?—I should be thankful to receive either as a reduction of our charges. Mr. G. O. Thirkell. 13 July 1857.

5110. *Chairman.*] If you had your desire, you would like best to have the Customs duty let alone, and the Excise duty taken off?—Yes, I should very much like that.

5111. Should you like that the best of all?—It is not for me to choose, but I should like that the best by which I could get most relief from.

5112. I want to get at your opinion upon the subject of the Excise duties?—I firmly believe the acreage duty would be the most favourable to all the hop planters in England of any other scheme; but notwithstanding that, I consider there are disadvantages that may arise in stretching a line across any public movement; for instance, when there is a body of men, when you stretch the line, you must benefit one person more than another; therefore, a man that grows a ton per acre would get more benefit than a man who grows three hundredweight per acre; but I very much doubt if the 3 *l.* per acre were put on whether it would not stimulate the hop planters to more particularly cultivating their land than in the way they have done with hops, to grow a larger crop upon a small portion of land, which is the greatest loss the hop planters of England sustain. They cultivate too many acres, and in doing so the 26 *l.* or 27 *l.* imposed upon that quantity is where they lose their money; and if the 3 *l.* per acre moved those planters to grub their hops, I mean those that do not grow a sufficient quantity to pay them, you bring the average down, because here is 27 *l.* upon three hundredweight per acre, there is only 27 *l.* upon a ton per acre, and therefore that bears so much per hundredweight to the prejudice of the grower, supposing they do not get a large crop; so that they would be consequently benefited by any legislation causing them to grow the hops, because it is a decided loss to cultivate hops when they do not grow a large crop and get 4 *l.* per cwt.

5113. Then you consider that if there is to be an Excise duty, an acreage duty would be the best?—Well, I should choose it in preference to any other, believing it to be the most fair.

5114. Would you prefer no Excise duty at all, was the first question; you said you wanted no duty upon English hops, the Customs duty being let alone?—I should be most thankful it should be so.

5115. You would like that best of all?—I am jealous of its standing so. I fear that past legislation has moved in favour of foreigners more than in favour of English planters.

5116. If you were asked to do that which you liked best in respect to the Excise and Customs duties, what should you recommend?—I do not quite understand the question.

5117. If you might have your own way about the duties altogether, what should you like best to have done?—I should like to put on 5 *l.* more on the foreign hops, and take ours all off.

5118. Sir *Edward Dering.*] When you speak of your wishing for an acreage duty, I suppose you mean 3 *l.* an acre, do you not?—Yes.

5119. How much would it come to per acre, supposing that it was merely a commutation upon the present duty; that is to say, supposing the Chancellor of the Exchequer wished to get as much revenue as he does now, and were simply to commute the present duties into an acreage duty, do you know how much per acre that would come to?—Six pounds.

5120. Would you like that?—No, not at all.

5121. You think that the commuting of the present Excise duty into an acreage duty to the same amount would be prejudicial to you?—I do think so; but I think before the Chancellor of the present day would do it he would hesitate, after we have been day after day waiting upon him to ameliorate our condition with respect to the duty, when we are not able to carry on our business, and when we have been paying a war duty for 40 years in a time of peace, after the millions we have been called upon to pay; when you come to think of the various plans that have been put forward, and that we have had no redress, I think we have a different claim from any other race of men. We have been most highly burdened for many years, and we have been kept struggling on, because the interests have been so conflicting; one has been for one thing and another for another, so that we have been taken no notice of; but still the large body of planters have never been legislated for, because many of them are not

Mr. *G. O. Thirkell.*
13 July 1857.

not men that have any influence, and are small planters, and the larger planters have borne upon them hardly; they have been having communications with Members of Parliament, and they have carried their own measures to the prejudice of the general body.

5122. If I understand you rightly, you would rather remain as you are than pay an acreage duty of 3*l.*?—No; I should like that.

5123. Which do you like best; would you rather remain as you are?—I would take 3 *l.* per acre.

5124. Mr. *John Locke.*] Do you consider that the large planters like these duties?—I believe they do; at least, many of them do.

5125. What makes you think they like them?—Because they have had a monopoly.

5126. How do you mean they have had a monopoly?—By living in a particular district.

5127. Do you mean to say living in a particular place that is fit to grow hops?—No, because I think every place may grow hops.

5128. But may there not be quality as well as quantity; it is no use growing a large quantity if they are good for nothing?—No.

5129. These large planters do not feel the burden very much of the hop duties, because they grow very good hops, and get very good prices?—No, that is not the reason.

5130. The places which they have selected for growing hops are well adapted for the purpose, whereas the places the small planters have selected for growing are not at all adapted for the purpose?—No, that is not the case.

5131. Is it not so in many instances?—Yes.

5132. What complaint do you make of the large planters?—They are living in a locality that has been to many a favoured place to grow hops in times of blight, when the large body had to stand by and grow none.

5133. Is not the place where they grow them well adapted for the purpose; is not the land good, and everything else calculated to grow hops to advantage?—It is for their individual interest.

5134. Whereas other places are not so well adapted to it; for instance, there is a great deal of land in Sussex where they grow hops?—That is not the case, because I have a right to grow hops anywhere I please.

5135. *Chairman.*] You do not think it is right that the Legislature should aggravate the difficulty of hop growing in the poorer districts?—Decidedly so.

5136. Mr. *John Locke.*] Do you not think it would be much better if the poorer districts did not grow hops at all, but turned their attention to something else which they would get a better profit by?—No, it is almost impossible.

5137. Why so?—Because, when a man is placed on a farm as I am, occupying 360 acres, and having various occupations in different places, and under different landlords, who have bound me to cultivate land with hops, I cannot throw that land out of the cultivation of hops without breaking the covenants of my lease.

5138. Then you have entered into a bad bargain, is it not so?—Yes, if the duty remains as it is.

5139. That is the reason why you say the hop grounds may be cultivated on bad land in Sussex, because you have entered into a bad bargain with your landlord; is that your only reason?—I do not say that; they grow more in quantity on this very land which is poor land for corn.

5140. But do they get a profit?—In those years which pay them, which is when the hops fetch a good price, and they grow a good crop.

5141. Does that make up for the years when they are not paid for the growing of them?—That very much depends upon the strictness of the culture and upon the outlay of the cultivation, whether they do it judiciously or not.

5142. Suppose you do it judiciously, that does not follow that other people may not do it injudiciously; if you take it upon the long run, they would gain?—Yes, some planters, but not all.

5143. Then what have you to complain of, if in the long run you get a profit; what complaint have you to make?—That the large body of the planters would not be placed in that situation.

5144. Why so?—Because they do not grow a crop large enough.

5145. Then

5145. Then had they not better leave off trying to grow crops and only getting a loss?—No; I think the 3 *l.* an acre would be the best duty.

5146. *Chairman.*] Do you not think that there are lands which could grow hops at a profit if it were not for the duties, and which are now prevented by the duties from so doing?—I have no doubt about it if the foreigner did not interfere.

5147. Mr. *Wykeham Martin.*] You seem to agree to an acreage duty?—Not to the exclusion of everything else.

5148. You said you thought it was most fair?—Yes, I believe it would be so.

5149. You occupy land at some places for which you pay 5 *l.* or 6 *l.* an acre, and you occupy land in others for which you pay 12 *s.*?—Yes.

5150. And you are quite content that the two qualities of land should be treated alike by the 3 *l.* duty?—I am of opinion that I should get the most benefit upon the cheapest land.

5151. Then, in your own person, you do not see any objection to the acreage duty?—No; I believe it would act well, as I should know how much duty I had to pay 12 months beforehand.

5152. Mr. *Beresford Hope.*] You were asked whether you would not put the least remunerative land into other cultivation; supposing that other planters did so generally, would that make a great confusion in the country, on account of the large quantity of land which is now in cultivation for underwood?—I think so.

4153. Would it not only throw the poor out of labour in the summer time, but also throw them out of those occupations which take place in the winter?—Decidedly.

5154. In your opinion do not the systems help each other?—Yes.

5155. Mr. *John Locke.*] Have you taken into consideration whether the wood land and the bad hop land might not be beneficially turned to account if it were turned into something else; I want to know whether you think it is advisable to appropriate a large quantity of wood land, as against a quantity of land that is not covered with wood, for the purpose of growing bad hops?—I should think a great deal of bad wood land would be the right land for hops.

5156. I did not call it bad wood land; what I said was bad land for growing hops?—Exactly so; this bad land is often very fruitful land.

5157. But it does not grow good hops?—No, I did not say it did.

5158. I mean hops that fetch a good price?—That depends upon the soil, and genera cultivation and management.

5159. But it does not pay for growing them, does it?—I may say this one thing, that a great deal of it does pay badly.

5160. I must repeat my question; do you think it is a beneficial thing to do, to appropriate land which does not pay for growing hops, and likewise to tack to that an immense quantity of other land to grow underwood for the purpose of making this bad speculation; do not you think that the land which has underwood upon it, and the hop land might be turned to a better purpose, and that it would be more beneficial to grow the hops upon land well adapted to the purpose?—I do not think it is so; in my locality there is such a portion of each parish that must cultivate hops, and in that portion the labourers are imposed upon the quantity of land, and if the hops in each parish were grubbed up the labourers would be a burden resting upon the land, more than double the rent.

5161. Do you not think they could go somewhere else?—That does not appear to be the case.

5162. Mr. *Bass.*] If they did not, would they employ more than one-fifth of the labour?—Not more than one in nine.

5163. Mr. *Knight.*] Have you much planted wood in your parish?—There is a good deal.

5164. What is the value of it per acre?—As much as 60 *l.* or 70 *l.* per acre.

5165. At what time; at the time of cutting?—Ten years, or eleven years old.

5166. Then it is worth 4 *l.* or 5 *l.* an acre?—Yes; per year's rent.

5167. Is there any labour employed upon the crops between one cutting and the next?—Yes, trifling.

5168. Do not you think this is one of the most profitable crops that can be grown?

Mr. G. O. Thirkell.

13 July 1857.

grown?—It is, no doubt; for the landlord generally holds the wood lands in his own hands.

5169. Could you turn the land, by any application of any amount of capital, to a greater advantage both to the grower and to the labourer?—I do not know any way.

5170. Mr. *Beresford Hope.*] Has not a good deal of capital been put upon the wood land by substituting chesnut trees?—Decidedly.

5171. If you were to turn to another cultivation than the plantation for the last 20 years, it would be clean thrown away?—I believe it would be, and I believe it has interfered with it.

5172. A great loss has been occasioned, has it?—Yes.

5173. Mr. *Bass.*] Have you any apprehension that the growers of these profitable hops would be interfered with if foreign hops were imported on the same terms into England?—I cannot conceive how it could be otherwise; in the first place, we have an extraordinary tithe in each parish of from 15*s.* to 1*l.* an acre, and an ordinary tithe on the same acreage of from 5 *s.* to 8 *s.*

5174. Then you would be afraid to contest with the foreigner, would you?—Yes; I do not seem to like the competition; I have been and looked at the hops growing abroad, and I believe I could drive Englishmen out of the market if I were to import foreign hops, or get a good profit, and they would have none.

5175. Did you ever know foreign hops come into England before 1853 or 1844, when you got such high prices?—No, not to any great extent.

5176. Then did they do you much harm?—Yes.

5177. How did they do you harm?—I understood that Mr. Bass and a few more Members went to the Chancellor of the Exchequer and made a representation to him, which, I am sorry to say, robbed me of about 4,000*l.* or 5,000 *l.*

5178. How was that?—The hops got lower in the market, and I was holding to that amount, and I considered I was a loser of about 5,000 *l.*

5179. You were holding hops, were you?—I was.

5180. Were they old ones?—Some were old.

5181. Then it is not true what some gentleman has said here, that if the duties had not been taken off we should have had just as many foreign hops imported into England as if they were taken off?—I believe we should, because the price would have brought them here.

5182. Mr. *Knight.*] Do you mean that they would have sold for half price?—The price would have been remunerative.

5183. Mr. *Bass.*] Can you explain to the Committee how you could have got the higher price, if the same quantity of hops had been in the market?—It would be upon the principle of supply and demand. Supply and demand would regulate it as far as the system goes; all you really do, as I understand it, is, you would have given the extra pound.

5184. That is not an answer to my question; you admit that the same quantity of hops would have come in whether the duty had been removed or not; I understood you a minute ago to admit that there being the same quantity in the market, the principle of supply and demand would govern the price?—Yes.

5185. Do you not then come to the same conclusion that there would be no difference in the price, and that you were not robbed of the 5,000 *l.*?—Decidedly not, because, when these hops came in they were brought over, and brought over to our prejudice, and the price brought them over; they would have sent them over and paid the duty, whether the duty had been taken off or not; but, at the same time, when they got here, they were in the market to our prejudice.

5186. Mr. *W. Martin.*] I understood you that you had been abroad to look at the foreign growth of hops?—Yes.

5187. What part of the Continent did you go to?—I went to Belgium principally.

5188. What judgment did you come to as to the quality of Belgian hops?—I believe they are capable of growing very good hops.

5189. What conclusion do you come to as to the quantity?—I believe they are capable of growing a very large quantity; I have seen as many as 5 cwt. in some parts.

5190. Have

5190. Have they large quantities of wood to supply them with poles?—Yes, and very cheaply; they can be supplied at 1 *d.* each.

5191. *Chairman.*] How long do the poles last?—As long as ours do, when we give 40 *s.* per hundred.

5192. Did you inquire into that?—Yes.

5193. Mr. *W. Martin.*] You could tell that by seeing the quality, I suppose?—Yes.

5194. Did you inquire into the price at which they could grow them?—Yes.

5195. What was the price?—They said 1 *d.* each.

5196. I mean the hops; at what price did they say they could grow the hops at a profit?—Previous to the duty they could get them at 35 *s.* to 40 *s.*

5197. *Chairman.*] What year was that in?—That was in 1854, I think.

5198. Mr. *W. Martin.*] At what price do you think you could grow the hops at a profit in Kent?—That would materially depend upon the quantity grown.

5199. Upon an average?—We could not grow them at less than 4 *l.* a hundredweight.

5200. Mr. *Bass.*] You cannot, on an average of years, grow the Sussex hops or the Weald of Kent hops under 4 *l.* 18 *s.* a hundredweight, could you?—I do not think we could; that is, taking the blights into consideration, and other things.

5201. *Chairman.*] When you say 4 *l.* a hundredweight, is that the cost of production or the price at which you can afford to sell them?—Taking it at an average, I believe they could not be grown at less.

5202. Then at what price must you sell them, on an average of years, to make hops remunerative?—That would depend on whether they were Golding hops or other hops.

5203. Mr. *W. Martin.*] Perhaps it would be clearer if I were to ask you at what price you could grow the Grape hops of an inferior quality, and at what price you could grow the Golding hops?—I believe there is 30 *s.* per hundredweight difference.

5204. If 4 *l.* were the medium derived from the present figure, how would you separate them; what price would you put upon them; what price could you grow the Grape hop at, and what price could you grow the Golding hop at?—I should say 70 *s.* per cwt. for the Grape hops, and 5 *l.* for the Golding hops.

5205. *Chairman.*] That is the cost of production, exclusive of duty?—Yes.

5206. And that is upon an average of years?—Yes.

5207. Is that the price at which you could afford to sell them?—Yes, with one ton per acre growth.

5208. Mr. *Knight.*] If the foreigner could very much undersell that price, it would be destructive of hop growing in England, would it not?—Decidedly.

5209. And then that would throw nearly nine-tenths of the labourers out of employment?—Yes.

5210. And therefore it would be the ruin of the whole district for the time?—I am satisfied of that. In the district I live in, the land would be of no use from the high poor-rates.

5211. *Chairman.*] I think you said, speaking of the Excise duty, that the Excise duty pressed very unequally upon lands of different kinds?—Yes.

5212. Do you not think that the fairest course for the Government to pursue would be to leave the farmer to cultivate his land with the crop he thinks suits it best, without any inteference on the part of the Excise?—I cannot say I like the Excise.

5213. I am speaking of the Excise duty, and the Excise duty only?—I should rather pay a little duty, than have the foreigner in free.

5214. I am speaking of the Excise duty only?—Yes, with the 2 *l.* 5 *s.* Customs remaining.

5215. Mr. *Bass.*] Suppose there were no such thing as a foreign hop duty, would you not like the Excise duty off?—Yes.

5216. Mr. *Knight.*] Is there any other tax you pay that you would not like to have taken off?—Well, I would take anything off here, as long as the foreigner is not to come in free, but to pay as he does now.

5217. Mr. *Bass.*] You never were a free-trader, I suppose?—Yes, I was, till I saw that it was wrong.

Mr. *G. O. Thirkell.*

13 July 1857.

5218. You found out that it was wrong with regard to the corn, did you?—I found it was wrong at the time; it had not the effect I anticipated.

5219. Then, you were in favour of free trade in corn when the question was before Parliament?—No, not when the measure was brought in.

5220. Were you opposed to it at the time it was carried?—Yes.

5221. Why were you opposed to it?—Because I saw the foreigner was capable of growing the corn cheaper than we could.

5222. Do you find that to be the case now?—Decidedly; they get 10*s.* profit upon the quarter more than we do.

5223. How is that?—Because their capabilities are greater.

5224. Have you taken into account all their expenses of bringing it here?—Yes, the whole of it.

5225. Then you mean to say they can undersell us?—Yes.

5226. Then in point of fact you are disappointed in the result of free-trade, because it does not make corn cheap enough in the country?—Yes, that is the case; as a hop planter I have two interests, I want to have bread cheaper for the poor, and hops dearer than they now are.

5227. Mr. *Knight.*] How many acres have you cultivated for hops?—Two hundred.

5228. Then I suppose you have found the growing of hops a successful speculation?—Yes, I have sometimes; but I have very often had to go into the cornfield to pay the hop duty.

5229. But taking the average, you have found it a profitable speculation?—It has not paid me so well as if I had employed my capital in cultivating the land with corn, and had hired in a corn district.

5230. Mr. *Bass.*] It has not been so good a trade as carrying on an ordinary farming business?—Yes, the carrying on of a large corn business is better; if I had been in a corn district I should have done better.

5231. Some very clever gentlemen have said that their opinions are different from yours in regard to the duty; they regard the Excise duty as an advantage, inasmuch as it deters people from going into the hop-growing business, who, if the duty were not in existence, would be induced to do so?—I do not think it is so.

5232. *Chairman.*] Does not the Excise duty very often cause considerable distress in some of the hop-growing districts?—There is no doubt that it does; it does now, because there is proof of it.

5233. When there is distress in the hop-growing districts, does it not extend to the labourers as well as to the farmers?—Yes, decidedly.

5234. When the farmer is distressed, and has lost his capital, then of course the labourers are thrown out of employ?—Yes.

5235. Sir *Edward Dering.*] Many men, I suppose, with insufficient capital embark in hop planting and hop growing, when it would be wiser for them not to do so?—No doubt there are such cases.

5236. *Chairman.*] Do you not think there is many a man who could get on with hop growing, were it not for the duty, who does not get on because of the duty?—I doubt that.

5237. Do you not think that the duty increases the cost of production?—No, not of producing the hops.

5238. Does not the duty increase a man's loss in a year with a heavy crop?—It does, no doubt, there can be no doubt that in the Weald of Kent and the county of Sussex they have lost the whole of the duty they have been called upon to pay for hop planting in the last three years.

5239. Then it is a thing which presses most unequally upon one kind of land as compared with another?—Well, I cannot think that; it is a thing that presses equally when they cultivate judiciously, when they do not grow crops that interfere with one land more than another. I believe that most land is capable of growing larger crops than what they do grow in a general way.

5240. You said the Weald of Kent and the county of Sussex have lost the hop duty for the last three years, do you think that East Kent has always lost the hop duty in the last three years?—I do not think it has.

5241. Do you know anything of the Worcestershire hops?—No; I have not been in that part, and I know nothing of it.

5242. Mr. *John Locke.*] What is the reason that East Kent has not lost the

the hop duty in the last three years?—Because they grew a good crop in 1854, and sold it at a good price, and the other districts I spoke of were blighted.

5243. Then it had nothing to do with the difference in the position of the Weald of Kent and the county of Sussex as against East Kent, but it was merely the blight?—It was the blight that was the cause of it.

5244. *Chairman.*] Have you any doubt that the East Kent land is a very superior land to the land of Sussex and the Weald of Kent?—I do think it is in quantity.

5245. But for growing a quality?—No, but for obtaining a higher price.

5246. Sir *Edward Dering.*] Are not the hops of a superior quality much more subject to be blighted than the Sussex hops?—The land is, perhaps, more subject to blight, through mould; but I think under the present skilful system of cultivation there is not a very great deal of difference.

5247. But is it not the fact that the superior description of hops is much more liable to blight than the Sussex hops?—That depends upon whether you really have a poorer sort of hops or not, or live in a blighting district.

5248. I am asking you, when they grow a superior quality, and less in quantity, is it not much more liable to be blighted than the Sussex hops that grow in large quantities?—I do not think it is so much they are poor, but, take the Mid-Kent and the East Kent growers as a body, their hops are a spurious, base sort, and that is a great cause of their being mouldy.

5249. But, in point of fact, do you not think that the blight of the hops in East Kent and Mid-Kent is much more liable to take place than with the Sussex hops?—I think they are not.

5250. Mr. *John Locke.*] With respect to the Golding hops, a statement has been made with respect to that they can be grown on any soil if the climate is suitable; is that your opinion?—I believe they can be grown on any soil where there is depth of soil, and there is a gravelly bottom.

5251. Then it must be where there is not a clayey bottom?—Yes.

5252. They could not grow there?—I do not believe they would stand long.

5253. Then you do not agree with the opinion that a peculiar soil is necessary for the Golding hops as well as climate?—I believe they are to be grown, but they cannot be grown to such perfection.

5254. *Chairman.*] In reference to the acreage duty, will you state to the Committee on what grounds you recommend an acreage duty?—I think it would be very beneficial, in causing very many planters that have come here in the state they did, who could not grow more than three hundredweight or five hundredweight per acre, acknowledging they have had 27 *l.* to pay for cultivation, that if it were known that 3 *l.* was to be the sum they were to pay at the beginning of the year, they would be deterred from going on with that 3 *l.* staring them in the face, and they would grub their hops, and not lose their money in the way they state they do now.

5255. Sir *Edward Dering.*] You think the acreage duty would have the effect of diminishing the quantity of hops grown?—Yes; I think it would, because if a man knows he has got 3 *l.* to pay he makes a statement that there will be 26 *l.* for expense, then if he only grows five cwt. at 5 *l.* per cwt., that is a loss of 1 *l.* per acre if you add the picking and duty.

5256. Then the result of the acreage duty would be to diminish the number of acres that are now in hop cultivation?—I believe so; and it would stimulate a man to go and cultivate 10 acres of land on the farm, when the oast-house is only sufficient to dry them, instead of going and cultivating 20, which many of them do now, and yet to grow as large a quantity, and save 260 *l.*

5257. Mr. *Beach.*] When you speak of an acreage duty of 3 *l.* you are assuming that the Chancellor of the Exchequer would reduce the duty one-half?—Yes; we consider the planters have been so imposed upon by having such a heavy duty imposed upon us so many years past, that we have a claim to have the half taken off, because these charges that are now imposed are a war duty.

5258. *Chairman.*] You consider that the loss is the Chancellor of the Exchequer's business?—Yes, decidedly; but it ought to be our business as well, for we cannot pay the duty.

5259. You would simply impose an acreage duty of 3 *l.* an acre on all land that grows hops?—Yes.

5260. You would not enter into the question of the value of the land?—No; I

Mr. *G. O. Thirkell.*

13 July 1857.

could quite as well afford to pay 3 *l.* an acre upon the land that I give 12 *s.* for, as I could upon the land I gave 6 *l.* for; and, in fact, I should pay it in preference.

5261. You find in that case the quantity makes up for the quality do you?—That depends very much upon the price.

5262. Do you consider, in the long run, that the crop you grow upon an acre of land, that you pay 12*s.* rent for, sells for as much as a crop you grow upon land that you pay 3*l.* for?—It has been so with me, but I believe it would not be so for a long standing, because I hired my land at 6*l.* an acre, and I have grubbed the whole, and that was not the first year's poleing; but I took it, and I have introduced other stock there. I have grown, side by side, three times the crop I did before, the hops being a better sort I have planted.

5263. Do I understand you to say, that you found the crops that grew on that kind of land are as valuable crops as you can grow upon the other kind of land?—No; I believe the crop would be most valuable upon the 6*l.* an acre land since I have improved the sorts.

5264. Mr. *Knight.*] How many years is it since you first began to grow hops?—I began in the year 1833.

5265. How many acres had you the first year when you tried that?—When I took the farm I have now, I think it was 44 acres.

5266. Did you go on for some time before you took away the hop land?—I grubbed down to 12 acres; there is only 12 acres on the farm now.

5267. How long was it before you took other hop land?—I took some hop land in Leeds parish in the year 1847.

5268. Had you previously only the 44 acres on the farm you first took, or had you only hop land?—I had 360 acres of land, and 44 acres of it with hops.

5269. How long is it since you had the 200 acres of hop land?—About two years.

5270. Then you have been gradually increasing your hop-growing?—I have hired farms where it so happened they have been all hops, and they fell into my hands by being connected with other people; I did not anticipate taking them.

6271. Then you are a very large hop grower?—I have 200 acres.

5272. You did not think the duty was so completely ruinous as to prevent your extending the growth of your hops very much?—As regards that I did not extend it, because, in fact, I considerably diminished it on the same land.

5273. Mr. *Bass.*] As I understand you, on the first farm you had taken, you have reduced it from 44 acres to 12 acres?—Yes.

5274. The reason you are trying the hop-growing now is that you have taken other farms which had before chiefly grown hops?—Yes, and we were required to grow them by lease.

5275. Why did you reduce, on your own original farm, your hop-growing from 44 acres to 12 acres; did you find it did not pay?—I did it on this ground, I had bought a little lot of my own.

5276. Mr. *Knight.*] Was there more than twelve acres of hop land when you first took it?—Yes, there were 44.

5277. You having planted your ground with hops, you took it with the impression that it would improve the value of your own land considerably if you could get the duty off without a foreign importation?—I should like to have the burden taken off us, and be given to the foreigner.

5278. You first of all improve your own land by planting hops, and then you try to improve it still more by getting the duty cast on the foreigner?—I think we have a fair claim to have the duty taken off.

5279. Mr. *John Locke.*] You say that several of the farms have fallen into your hands, and that you have been obliged to carry on the hop-growing; were all these farms well provided with oast-houses?—They were principally so.

5280. Have you not built yourself a good many oast-houses?—Only one.

5281. Where was that?—On the farm I spoke of.

5282. In Brenchley?—Yes.

5283. What quantity of land was there appropriated to hops on this farm, when it first came into your hands?—Not any.

5284. How many acres have you planted with hops in Brenchley?—Thirty-seven acres.

5285. And in addition to your giving an outlay, and making 37 acres into hop

hop land, you have likewise built an oast-house?—There was one before, but I have put up two kilns to it. Mr. *G. O. Thirkell.*

5286. Was that because it was a bad speculation?—I consider that I was improving the land. 13 July 1857.

5287. By laying it down in hops, and by laying out your money in an oast-house?—Yes, and the extra manure and draining required.

5288. Mr. *Bass.*] Is it not notorious that the cultivation of hops has increased from 42,000 acres to 56,000 acres?—There is not 56,000 now.

5289. How many are there now; according to the last return 54,000 odd, is it not?—I have never seen more than 50,000 returned.

5290. I think you will find above 54,000 last year, and 56,000 the year before; you do not seem to have known that there were nearly 58,000 in the year 1856; I merely wish to show the fact, that the hop cultivation fluctuates extremely between a little above 40,000 and a little under 60,000 according to the crops?—I believe it does.

5291. *Chairman.*] Is it not the case, that when there is a year or so of short crops and high prices the cultivation is extended?—Generally so.

5292. And then come again some years of low prices and heavy duties, and the cultivation is reduced?—Yes.

5293. Have you anything further to state with reference to the acreage duty?—No.

Mr. *Thomas Robert Cutbush*, called in; and Examined.

5294. *Chairman.*] YOU are a Kentish hop grower?—I am. Mr. *T. R. Cutbush.*

5295. In what part of Kent?—In Mid-Kent, in the parishes of Teston and Yalding.

5296. Is your land on the Ragstone Hills?—Yes.

5297. Yalding is below that, is it not?—The portion where I farm is.

5298. That is not in the Weald?—It is sometimes called in the Weald, especially when we are selling hops; we generally like to call it Mid-Kent.

5299. When you are selling hops, who calls it the Weald then?—The buyer, generally.

5300. What sort of soil is it?—It is what we call a gravelly loam, that part of Yalding which I grow hops upon; and although it is sometimes called in the Weald of Kent, it is not exactly the Weald of Kent side.

5301. Is it land that requires drainage?—No.

5302. How many acres of hops do you grow?—I farm 200 this year, but I never did so much before.

5303. Then you have increased your growth?—Yes, because I have come in possession of a couple of fresh farms.

5304. Sir *Edward Dering.*] You have been a hop grower for some years, have you not?—I began in the year 1818.

5305. To what extent did you begin, then?—I began at 140 acres, and I kept it up to 150; then my wife's uncle left me a business where there was between 20 and 30 acres, and I have since been called to take another farm where there is between 30 and 40 acres.

5306. What do you consider to be the expense of cultivating an acre of hops?—I make it to be 30 *l.*

5307. Up to the time of picking?—Up to the time of picking. I should also say that I superintend a farm in the Weald of Kent.

5308. You are speaking of the expense in this parish as being 30 *l.* a year?—Yes; I would not call Yalding so much.

5309. *Chairman.*] How much is Yalding?—About 27 *l.* an acre; the rent is less expense.

5310. Sir *Edward Dering.*] Is there anything included in these figures?—Yes.

5311. *Chairman.*] What is the rent at Teston?—£. 4 an acre.

5312. And how much at Yalding?—At Yalding the land is my own, but I value it at 3 *l.*

5313. What is the extraordinary rent-charge?—Yalding is 17 *s.* and Teston 16 *s.*

5314. Sir *Edward Dering.*] What description of hops do you grow?—Principally Goldings: some Jones's, and some Grapes.

5315. You have been a hop grower since the year 1818, you say?—Yes.

5316. What is the result of your experience with regard to hop-growing; is it

Mr. *T. R. Cutbush.*

13 July 1857.

it profitable, or otherwise?—I am better off than I was, and therefore I may call it profitable; I have done enough to make me feel quite comfortable.

5317. And that is in spite of the Excise duty?—Yes.

5318. What is your opinion with regard to the Excise duty?—I have no objection to it.

5319. *Chairman.*] Do you think you would have done as well without it?—Yes; if I could have had the same price for my hops, I should have done better.

5320. Do you think you have got more for your hops in consequence of the Excise duty?—I believe I have.

5321. Then you think the Excise duty has done you good?—Yes, because I think it has kept the hop-planting from going on so fast as we should have had it in the county of Sussex. I can see no reason why hops should not be grown in the midland counties and the West of England if it were not for the expense of putting up oast-houses.

5322. Do you think the Excise duties act as a restriction upon the cultivation of hops?—Yes.

5323. Sir *Edward Dering.*] What do you think, suppose the Excise duty were taken off?—I think the probability is, that you would increase the hop plantation to the detriment of the country.

5324. What you wish with regard to the duties, is to keep things as they are?—Yes, I would rather keep as I am.

5325. *Chairman.*] You would have no objection to increase the Customs duty on foreign hops?—I have no objection to anything that would put more money into my pocket. I think if you were to put more Customs duty on, and take off the Excise, we should be better off than we are now.

5326. Mr. *Locke.*] Is that observation confined to hops?—Yes.

5327. Sir *Edward Dering.*] Is your district very thickly populated?—Yes. With respect to Teston, I have all that to myself; I have increased my plantations very considerably there, because when I first went there with a moderate plantation, I could not employ my people, and I was bound to keep them or employ them, or else I must have paid the poor-rates.

5328. Mr. *Bass.*] Are all the labourers you employ living at Teston?—Yes.

5329. Have you, within the last two or three years, increased your plantations?—Not within the last two or three years.

5330. Have you grubbed any hops within the last two or three years?—No.

5331. You grow very good hops, do you not?—I generally try and persuade the people I do when I have them to sell.

5332. Sir *Edward Dering.*] Do you think that any diminution of the hop cultivation would reduce your population to great distress?—Yes; if the hops were grubbed in Teston parish, it would cause a great revolution at the commencement, because there would not be employment for the people, and they would be driven to emigrate.

5333. What may you imagine the difference is between the number of people necessary to cultivate an acre of hop, and the number of people necessary to cultivate an acre of arable land?—It would take four or five more labourers to an acre for hops.

5334. Mr. *Bass.*] Do you mean to say it would take four men to an acre of hops?—Yes.

5335. Surely you are mistaken; do you mean to say it requires more than four men to cultivate an acre of hops?—I do not mean to say that. I mean to say that, if I were farming Teston parish (there is about 400 acres of it), I should not want above half a dozen or 10 men, and now I want 30.

5336. How many acres of hops do you cultivate?—Ninety-five acres.

5337. How many acres of hops can one man cultivate, reckoning all his land to be devoted to hops?—I calculate that perhaps a man would cultivate between two and three acres.

5338. Sir *Edward Dering.*] What do you pay for labour?—Fourteen shillings a week; that is 2 *s.* 4 *d.* a day.

5339. You principally work by the "great"?—Yes.

5340. Mr. *Bass.*] You employ a larger proportion of labour to the acre there; on an average, you cultivate more highly than in Yalding?—I do not know about Yalding; but I do cultivate more highly in some places. I do more with horse labour at Yalding.

5341. I suppose

5341. I suppose there is no parish in Mid-Kent supposed to be better qualified for the growing of hops than yours?—No.

5342. There is no parish that grows better hops?—I think not.

5343. That may be one reason why yours has been so profitable?—It has paid me very well, except for the last two or three years.

5344. Sometimes, I suppose, you hold hops?—Yes; I have held hops sometimes.

5345. That is when they have been very good?—Sometimes, when they have been good.

5346. Mr. *Knight.*] You have grown a good many hops at one time in the Weald of Kent?—I did.

5347. Is the cost of cultivation in the Weald of Kent greater or less than in other parts?—I should call it less.

5348. No one can know better than you?—I have tried them both.

5349. Sir *Edward Dering.*] Mr. Thirkell told us that the cultivation in the Weald of Kent was 27 *l.*, and in Mid-Kent 24 *l.*?—I must reverse it; I called it 30*l.* at Teston, and at Yalding I call it 26*l.* or 27*l.*, and in the Weald 24*l.*

5350. Mr. *Bass.*] That was principally on account of the variety of places?—Difference in the places and in the difference of the rent. I charge more for interest of money.

5351. *Chairman.*] In that 30*l.*, do you charge the interest of money necessary for forming the hop garden, and stocking it?—Yes.

5352. A hop garden on the Ragstone Hills will last longer, when formed, than a hop garden in the Weald, will it not?—Yes.

5353. How long will it last?—I have heard of their lasting 100 years.

5354. How long do they last in the Weald?—From 8 to 12 or 14 years; they last longer than they used to do, because they go to a greater expense in draining.

5355. What quality of hops are the bastard East Kents?—They are hops grown in parishes where they do not grow so rich and so good.

5356. Mr. *Bass.*] It is the country that is bastard, and not the hops?—Yes.

5357. *Chairman.*] Are they a bad kind of Golding hops, grown in a bad hop ground?—No, they are Grape hops.

5358. Sir *Edward Dering.*] Was there not some years ago a list of parishes published, which were considered to be the only parishes which contained the pure East Kents?—I believe so. Mr. Benjamin Booth once told me he had sold my hops in Ireland, and he thought they would go there for the future as they were very much liked; but about six or eight months afterwards he told me it was all up, for that somebody's traveller had been round that part of the country and told them they grew at Brenchley, and they did not like them.

5359. Do you think that every kind of hop that is grown out of this peculiar parish, although very good in itself, is called bastard East Kent hops?—I do not think that this bastard East Kent parish estimate the quality of the hops so much as they ought to do.

5360. But still the fact is as I state it, that this kind of hop is grown in these outlying parishes?—Yes.

5361. And then they become bastard East Kents?—Yes.

5362. Mr. *Bass.*] The finer crops do not grow so well there?—No; the soil does not suit them so well.

5363. A large crop is not so advantageous as a moderate one, is it?—I think so.

5364. According to your experience is it more advantageous to the general grower that the crop should be moderate than that it should be large?—I have done better with a big crop than a small one.

5365. Then what is it that makes the hop people cry out so much just now?—Because they will cultivate a larger number of acres than they have capital to finish them with.

5366. What tempts them to do that?—Because they hear somebody has made a good deal of money in the growing of hops, and they think they should like to have some share in it.

5367. *Chairman.*] Do you think that the duty is an item in the cost of production?—I think it keeps the hop plantations to the most proper lands.

Mr. T. R. Cutbush. 13 July 1857.

5368. Mr. *Locke.*] Do you think then, the grower or the consumer eventually pays the hop duties?—The consumer.

5369. Do you find that from your experience?—Yes; because if I paid the duties I should have found that out before now.

5370. And you have not found that to be the case?—Yes.

5371. Do you find the duties so small that it does not tell?—Yes.

5372. Mr. *Bass.*] What should you say of a man who sold 11,000 cwt. in the year 1854?—That is an exceptional year.

5373. What, in 1852?—That is an exceptional year; there were a good many hops in 1853 sold for 5 *l.* a bag, and they afterwards went up to 15 *l.* and 16 *l.*

5374. Do you mean that there were any hops grown in 1853, that sold for 5 *l.* a cwt.?—I know that I went to London to sell; and they all went down to 5 *l.* a cwt.

5375. Did you wait till the next?—Yes.

5376. Did you sell for 5 *l.* a cwt.?—Yes, after waiting.

5377. If all the sales had been made like yours was, the results would not have been so beneficial as they have been?—I do not know about that; but in 1853 I went to London, two days after Maidstone fair, and my neighbours who went the day after sold theirs at 14 *l.* and 15 *l.*, and I could not sell mine at all, as they went down till they got down to 5 *l.*

5378. *Chairman.*] Do you think that the long credit that is given rather tempts men from embarking in hop growing?—I think it is injurious to the grower; if I had my will, I would make it all payable in March.

5379. Mr. *Locke.*] Did the foreign hops come in in 1853?—No, they came in in 1854; they gave me a slap there.

5380. How was that?—Because they knocked down the price, and they told me Mr. Bass was the cause of it.

5381. Mr. *Bass.*] You are a very intelligent man, and I ask you, do you believe it possible that an individual going to the Chancellor of the Exchequer, with so much experience as the Chancellor of the Exchequer had, could have had any undue influence upon him?—I do not charge you with having any undue influence, but I did hear of a statement having been made by you to the Chancellor of the Exchequer, either by you or somebody else, that the price of hops was so extravagantly high, that unless something was done it would interfere with the consumption of malt.

5382. Well, now then, I ask you, have you found me wrong in that?—I think I have.

5383. Did you ever know a year when the price was higher than it was that year?—Yes, in 1817.

5384. Since the year 1817, it has never been so high till then?—No.

5385. Then I was not justified in telling the Chancellor of the Exchequer that the price of malt would be extravagantly high?—It may be so; but I would rather you had not told him so.

5386. Now let me ask you this, was I not right upon the other point, that the quantity of malt consumed was likely to be affected by the price of hops?—I think not.

5387. Do you mean to say that the quantity of malt consumed was not affected by the price of hops?—I think if you had not got the 25 *s.* off, you would have had as many useful hops in the market, and not so much rubbish.

5388. I was asking whether, in fact, the consumption of malt in 1854, because the beginning was in October 1854, was not materially less than in 1853?—I dare say it was, because extreme prices will always lessen consumption.

5389. Then, was not that what I told the Chancellor of the Exchequer?—It did not suit me.

5390. Mr. *Locke.*] Was not the duty upon malt increased that year?—Ten shillings.

5391. Mr. *Bass.*] You said you were told I was a very large holder of hops that year?—I have heard so.

5392. Do you believe that?—I do not know anything about it.

5393. If I were to tell you now that the difference to me did not exceed 400 *l.*, that would not be consistent with what you have heard before?—If you say so, I believe it is so.

5394. *Chairman.*] Have you heard anything of the scheme of an acreage duty?—I have.

5395. What

5395. What do you think of that?—I do not like it at all; I think these very people who advocate it would be the first to complain of it the first blight we had.

5396. Sir *Edward Dering.*] Have you turned your attention to the consideration of a graduated scale?—I think that it is deserving of attention, provided the Government should make up their minds to make the alteration; if they should do that, I should prefer that to any scheme I have heard of, though I have been told that the war duties cannot come off; in fact, that this duty has been paid so long that it has been considered a peace duty; if any alteration were made, there would be a corresponding alteration in the Customs, and I am quite satisfied from those who have been abroad buying hops, that if that were the case the foreigners would inundate us with hops.

5397. Mr. *W. Martin.*] You say you have given some attention to the graduated scale, have you considered how it would operate when the duties became very large?—I have not.

5398. Suppose the scale to begin with a duty as high as 27*s.* when the crop is very small, have you paid attention to the fact that at that time we should very probably have a large influx of foreign hops?—In all probability, when the hops are high, you would.

5399. How would that act upon the English grower, who would have to pay a high Excise duty, at the time when the foreign hops were probably lowering prices?—The 27*s.* would be a high duty.

5400. Sir *Edward Dering.*] Are you aware that the 27*s.* would be only paid when the duty was under 80,000*l.*?—I do not know that it would hurt us then.

5401. Do you not think that you would be able to pay the difference between the present duty and 27*s.* when the duty is under 80,000*l.*?—Yes; but do you calculate, when you talk of charging me 27*s.*, what the Customs are?

5402. The Customs are to be left as they are?—I think the graduated scale would satisfy the people who are now very much dissatisfied.

5403. *Chairman.*] Then, for your own individual part, you do not find any difficulty in paying the duty as it is?—No; I am perfectly satisfied to remain as I am, as far as I am concerned.

5404. Sir *Edward Dering.*] You would rather have the graduated scale and the Customs as they are?—Yes.

5405. Mr. *Beresford Hope.*] I suppose you think the cultivation of underwood depends upon the cultivation of hops?—Yes.

5406. There has been a great improvement in the character of the underwood, has there not?—Yes.

5407. There have been large chesnut plantations?—Yes; there have been a considerable quantity, and I term them very valuable plantations.

5408. Mr. *W. Martin.*] Do you happen to know how many adult labourers there are in Teston?—I cannot say how many, but I employ all that are left; the remaining part of the parish is in my hands. I have the tithe and the glebe. Teston parish is not above 460 or 470 acres.

5409. Do you employ 30 men?—Yes, quite that number.

5410. Upon what?—Upon about 320 or 330 acres.

5411. Mr. *Bass.*] Is the whole of the parish on the north side of the river?—Yes.

5412. Where are the running footsteps?—On my land.

5413. Now with regard to this great controversy between the Sussex growers and the growers in the fine country, you know perfectly well that in some parts of Sussex they grow per acre a much larger average than you do, do you not?—Yes, I should say upwards of a third more than I do.

5414. But the produce per acre is by no means equal to what you get upon yours?—No, but it comes to as much as I get.

5415. For example, suppose a Sussex man sells 15 cwt., and you sell 10 cwt., do you mean he gets as much as you?—If the Sussex man were to get 15 cwt., I should only come off with eight.

5416-17. If you grow eight cwt., and the average for the Sussex man is 15 cwt., he has to pay 14*l.* more for picking and duty than you have?—Yes.

5418. Therefore to that extent he would be 14*l.* less than you?—I calculate they grow at less rent, less tithe, cheaper polls and cheaper labour.

5419. On the whole, do you consider it just that the Sussex people should

Mr. *T. R. Cutbush.* 13 July 1857.

pay the same duty on their 15 cwt., as you do upon your eight cwt.?—I believe they are quite as well off paying duty on their 15 cwt. as I am paying upon my eight. If I had my life to come over again, I would prefer going into other parishes.

5420. Where would you go to?—I would go into the neighbourhood of Rye.

5421. *Chairman.*] Have you ever grown hops in the Weald of Sussex?—No.

Mr. *Charles Leney*, called in; and Examined.

Mr. *C. Leney.*

5422. Sir *Edward Dering.*] WHERE do you live?—At Wateringbury.

5423. Where is that?—In Maidstone.

5424. Are you a hop grower?—Yes.

5425. To what extent?—About 130 acres.

5426. How long have you been a hop grower?—I began with a small quantity in the year 1839, and then I had only perhaps three or four acres, but I have been increasing since then; my greatest increase has been within the last seven years.

5427. And you say you now grow 130 acres?—Yes.

5428. I presume by your increasing the quantity of land for growing hops, you have found it a profitable occupation?—Yes.

5429. What description of hops do you grow?—Chiefly Golding's, some few Grapes, and some Jones's.

5430. What price per acre do you estimate the cultivation at?—I estimate it at 30 *l.*, I think it is wrong to calculate it at less.

5431. Up to the time of picking?—Yes.

5432. What do you estimate the expense per hundredweight of picking, drying, and duty?—It will vary in consequence of the crop; if it is a small crop, the expense will be more in proportion.

5433. What should you say is a fair average?—Ten hundredweight to the acre would cost about 40 *s.* a hundredweight.

5434. What rent do you pay for your land?—I should say 3 *l.* would be a fair price.

5435. Is it your own land?—No.

5436. *Chairman.*] Is the land on the Ragstone Hills?—Yes.

5437. Sir *Edward Dering.*] Then you have found it profitable in spite of the duty?—Yes.

5438. What is your opinion with regard to the duty?—I think we should be benefited, even by doubling the Excise, provided the Customs were doubled also; for I look upon the Customs as a protective duty, and I fear competition with the foreigners; therefore I say we should be benefited. Of course I do not ask for that, but I should prefer it to any proportion being taken off our present duties, and the same proportion being taken off the Customs.

5439. You would not object to the Excise duties being taken off, assuming the Customs duties were kept on?—Certainly not.

5440. *Chairman.*] You like the Customs duties?—Yes.

5441. You don't agree with the witnesses who have told us they should like the Excise duties for their own sake?—Certainly not.

5442. Sir *Edward Dering.*] You prefer things remaining as they are rather than have any free trade in hops?—Yes.

5443. Mr. *W. Martin.*] You are a brewer as well as a grower, are you not?—Yes.

5444. Do you grow your own hops, or do you buy them elsewhere?—We buy a small proportion.

5445. You have not the same interest in reducing the price of hops that the other brewers have?—Certainly not.

5446. Mr. *Knight.*] Who do you think pays the duty, the grower or the consumer?—The consumer, undoubtedly.

5447. Suppose that the Cutoms duties were left as they are, and the Excise duties were taken off, there would be a benefit of something like 18 *s.* a hundredweight to somebody, who would have the benefit of that?—Both the planter and the consumer.

5448. In what respect would the planter have a benefit from it?—The planter would have a protective duty, and he would not have to fear the foreigner.

5449. But

5449. But the protection would have to remain where it is; if the protective duty were to remain as it is, and the Excise duty were to be taken off, who do you think would have the Excise duty in his pocket?—In my opinion the planter and the consumer would be both benefited.

5450. Would not the brewer derive some little advantage from it?—Hops would, in that case, be cheaper if the duty was taken off, and I think, perhaps, the buyer would receive a benefit, but not to a great extent.

5451. Sir *Edward Dering.*] To what do you attribute the existing distress among the hop planters?—I don't know: I hope I shall not say anything I ought not to say, but if you ask me my opinion what the cause of it is, I must say, I think it is entirely owing to the long credit given by Government, and I think if the Chancellor of the Exchequer would give the planters the whole of this half year's duty, and would take the other half in November, and then make them pay the whole of this present year's duty in February, and for ever afterwards the Government would receive as much money, and of course the planter would be silenced for the time.

5452. Then you think the system of long credit is prejudicial, because it induces a man to go into the trade of hop-planting when he has not sufficient capital?—I am endeavouring to explain my view; last year was a very heavy crop, and the prices were scarcely remunerative, especially in the Weald of Kent and Sussex; the parties scarcely paid the expenses, and this year it appears that many of the grounds will be blighted, and I have no doubt that many persons farm expecting the crop to pay the duty, and hence much distress.

5453. Then you think that if shorter credit were given it would discourage speculation?—I do; the land must then be cultivated with the legitimate capital, or if not, the Government would not be a lender.

5454. Mr. *W. Martin.*] You think that it would bring the whole trade into a more healthy state?—Yes.

5455. *Chairman.*] Do you think if the payment of the duty were rigorously insisted upon within two or three months after it became due, it would have the effect of stopping men of insufficient capital from embarking in the cultivation of hops?—Yes, I feel sure of it.

5456. Mr. *Knight.*] Are you not also a brewer as well as a hop-grower?—Yes.

5457. Would not having the duty paid earlier be an advantage rather to the the purchaser than the seller, inasmuch as the seller would be forced into the market at an earlier period than he now is?—Unquestionably it might be so, but then there is no consideration for the maltsters and other persons who pay heavy Excise duties.

5458. If that must be so, then the postponing the duty is an advantage to the hop-grower?—It is a temporary advantage.

5459. Sir *Edward Dering.*] But still, practically speaking, about three-fourths of the hops are sold before Christmas, are they not?—I cannot answer that question.

5460. Mr. *W. Martin.*] Your idea seems to be that the payment of the duty at an earlier period would force the grower to have then himself the means of paying it?—If the grower were certain that the duty must be paid early, he would be careful not to have any more hops than he can pay duty for.

5461. You mean it would be confining the growth of hops to persons who had a legitimate capital to grow them with, and who were in a position to grow them with propriety?—Yes.

5462. *Chairman.*] The effect of that would be, would it not, to compel the grower to bring his hops to market in order to get the money to meet the duty, or else he must have capital enough to be able to pay the duty before he sold his hops?—I do not know what the system of credit is, but I should imagine, that if a man had a large quantity of hops he might easily borrow money upon them by placing them in the hands of factors.

5463. Mr. *W. Martin.*] You would prefer the hops being cultivated by people who were in a position to advance the duty, and who would receive it back again whenever they might happen to sell?—Yes; but if a man will go into a reckless expenditure, I see no reason why he should be considered any more than any other trader. I believe the long system of credit is the sole cause of this complaint.

Mr. *C. Leney.*

13 July 1857.

5464. *Chairman.*] Of course if the duty were payable as you suggest, three months after its being charged, it would tend to confine the business more than it now is to men of large capital?—Exactly so; because, in this as in every other business capital will have some influence and advantage.

5465. But in the case of the cultivation of hops a man requires capital, not only for the necessary expense in cultivating the hops, but for the duty besides?—No doubt; but does he not also for fruit and many other crops.

5466. What other agricultural produce is there a duty upon?—I understood you to be speaking about the expense of cultivation.

5467. A man is not only obliged to have capital to meet the expense of cultivating the hops, but he must also be prepared to meet the duty, must he not?—Yes.

5468. Is that the case in any other branch of trade?—Certainly not.

5469. Mr. *Knight.*] The money not having to be found immediately, the grower generally receives it from the purchaser before he pays the duty, does he not?—That depends upon circumstances; a man may possibly sell his hops a month after they are gathered, but he may then have three half years' duty to pay.

5470. Is not that a very great advantage to the grower, particularly if he is not a man of large capital?—Certainly.

5471. Mr. *John Locke.*] If the duty were made payable in April, would there be sufficient time for a man to sell his hops?—I cannot answer that question.

5472. Mr. *Knight.*] You consider the present system more beneficial to the hop grower, do you?—Yes, I consider so.

5473. Mr. *Bass.*] We have been told repeatedly by witnesses that on an average two-thirds of the hops grown are sold before Christmas?—My experience will not enable me to speak to that.

5474. *Chairman.*] From your experience as a brewer, can you tell us whether the price of hops is a serious consideration to the brewers generally in those years when hops are at very high prices?—There is no doubt that the price of the hops goes almost, I do not say wholly, but chiefly out of the brewers' pockets for that year.

5475. Mr. *Knight.*] Do you mean to say that the price of beer is not much altered in consequence of the price of hops?—It is not, because it is not the custom of brewers to alter the price of beer if they can avoid it.

5476. Then you mean to say that the brewer gets rather more or less profit, according to the price of hops?—What I mean is, they do not answer the price of the commodity, in consequence of the rise in price of this particular article, as they do in many other trades.

5477. *Chairman.*] What you mean is that the practice of brewers in regulating the price of beer is to take a sufficient margin to cover the price of the hops whether it be high or low?—The brewers would unquestionably be losers, in cases where hops attained very extreme prices, as was the case, I should say, in 1854, when they must have suffered from the high price; but they would also receive benefit when the prices are low, because the price of beer does not fluctuate much.

5478. If the price of hops were to become uniformly lower, would not beer become cheaper?—It must to a certain extent become either cheaper or better, because competition, in my opinion, would compel the brewers to reduce the price.

5479. Mr. *Bass.*] You are aware that the consumer, in most instances, pays the duty?—Yes.

5480. If the brewer finds he is likely to suffer loss from the high price, he would take the average, and put the price of the hops upon the price of the beer, would he not?—Yes; I should consider so.

5481. How does he manage to do that when he regulates the price of his beer?—A man would make his calculation and say, is it prudent for me to raise the price of beer in consequence of hops being very dear; and although I can scarcely make my business pay now, yet is it politic for me to charge a higher price than my opponents do for theirs?

5482. Does he make it right, then, by putting fewer hops in?—No; I think not.

5483. How does he do it?—He takes the good and bad years together; sometimes he gets a larger profit than he does at others.

5484. Mr.

5484. Mr. *Knight.*] Suppose the price of barley varies very much, do you alter the price of beer on that account?—No.

5485. Mr. *Bass.*] You mean to say that a brewer gets less profit than he ought to do in one year, and in another year he may, perhaps, get more profit than would be considered reasonable?—Yes.

5486. Mr. *Locke.*] Are you of opinion that the brewers put on the exact price for the beer that they ought to do?—Yes; I have no doubt of it.

5487. Mr. *Bass.*] Did not the brewers lose by the prices in the year 1854?—No doubt of it.

5488. Notwithstanding you say in many instances the consumer pays?—Perhaps in that case it was from credit having been given to the brewers, and they could not go on obtaining credit, because the merchants would not give them credit at such extreme prices.

5489. Do the brewers generally buy of the merchants?—I believe they do.

5490. Do you think it is not common to buy of the grower?—I think it is not.

5491. Do you think it would be a good practice if they were to buy of the grower?—It is hardly a fair question.

5492. It is a question that has been answered before without objection?—I should not expect to have the thanks of some of my friends who are factors and merchants if I were to do so.

5493. Sir *Edward Dering.*] Do you see any reason why they should not do so, except as it affects the interest of the hop merchant or factor?—I can see no reason why they should not do so if they choose.

5494. Mr. *John Locke.*] Do you not think it is a benefit to the brewer that he should have the opportunity of buying through the factor, because you then have the price prevalent in the market, and the price would be better regulated in consequence?—That depends entirely upon a man's judgment; I know some persons who are very good brewers who are no judges of hops, in fact they don't know one sort from the other.

5495. Then the result is, when a man of that description buys of the factor, he buys the factor's judgment along with the hops. I mean he gets the benefit of the factor's or the merchant's judgment, does he not?—Yes.

5496. And if he is a respectable merchant he would take care for the sake of his own interest not to sell a bad article?—Yes.

5497. It would be the same as going to a respectable horse dealer to purchase a horse?—Yes.

5498. Mr. *Bass.*] Do you think that a hop grower and a horse dealer are very much alike?—I did not say that, though I have known some hop growers very much like horse dealers.

5499. Sir *Edward Dering.*] Would not the brewer be likely to buy his hops cheaper by buying direct from the grower?—Undoubtedly, if his judgment could be depended upon.

5500. Mr. *John Locke.*] When the brewer buys of the merchant does he get credit?—Yes, sometimes.

5501. If he were to buy of the planter do you think he could get credit?—I have no doubt that some planters would be very well pleased to give credit to the brewer.

5502. Mr. *Bass.*] Do you not think that the majority of the planters would be glad enough to draw upon the brewer for their hops at three months?—I dare say it would be so.

5503. Mr. *Knight.*] Might it not happen that a hop merchant would take the produce of a plantation for what it is worth year after year?—That is possible.

5504. But the brewer could not do that because some years the crops might be bad, and it would not suit his purposes?—Yes; and the brewer might only take a portion of a crop.

5505. Mr. *Bass.*] Perhaps you will agree with me in this, that when the brewer, as is very often the case with the large brewers, has abundance of money and does not want credit, either from the factor or the grower, there may be some other reason why he should not buy from the grower, and that is because he can get a better selection by buying from the factor?—Yes, and partly, or perhaps chiefly, from the want of judgment on his own part.

Mr. C. *Leney.*

13 July 1857.

5506. *Chairman.*] You said that the brewer bought from the factor because he got the factor's or merchant's judgment?—Yes.

5507. In that case he trusts to the respectability of the merchant?—Exactly.

5508. Could he not equally trust to the respectability of the grower?—No, I think not.

5509. Do you mean that the growers are not such honest men as the merchants?—No, I do not mean that; but it is not possible that the grower would be so foolish as to find fault with his own produce, but if a man came to purchase from a factor or a merchant, he would tell the purchaser that the hops were not such as would suit him.

5510. Mr. *Bass.*] Would not that also be the case with the merchant, that he might misrepresent the quality of the hops?—No; I think the merchant would not deceive the purchaser; that if the purchaser wanted Golding hops he would not sell him Grape.

5511. You just now spoke of hop merchants being like horse dealers, do you not think that they might be capable of making a misrepresentation?—I spoke of the hop grower.

5512. Mr. *Knight.*] Do you think there is any other trade or manufacture in the world in which the principal parties, like the brewers, are not judges of the commodities which they use?—Yes, it is the case with many. Farmers, themselves, are an example of it; they employ factors for obtaining their stock and for selling their corn, as is clearly shown by the thousands of quarters of corn that are sold by factors.

5513. Is that because the farmers do not know good corn from bad?—They know good corn from bad, but they do not know the market.

5514. You said that the brewers were not good judges of hops, but you do not mean to say the farmers are not good judges of corn?—That is not quite a parallel case; for example, there are many maltsters who employ factors in buying malt for them, because they depend on the factor's judgment in the choice of the samples.

5515. *Chairman.*] Do you think the majority of brewers are not judges of hops?—I should say they are not.

5516. Do you mean to say that they so little understand hops that they are not competent to buy on their own account?—Yes, I think so.

5517. Mr. *Locke.*] Is it a diffiult matter to judge of hops?—Yes.

5518. Can anybody acquire it?—Yes, I should think so.

5519. How it is acquired?—I cannot tell.

5520. There is the feel, and the smell and the look, and a great many other considerations, is there not?—Yes, exactly; but some men would not be judges of those points, any more than others would be judges of a horse.

5521. Mr. *Bass.*] You consider that hops are a very difficult commodity to judge of?—Yes, exactly.

5522. Would you say that all the merchants who undertake to select hops for the brewer are very accurate judges of their quality?—I should think they are all good judges.

5523. Mr. *Locke.*] Do you see any distinction between the necessity for having hop factors or merchants in the hop trade, and the necessity for having corn factors and merchants in the corn trade?—I think there is more necessity for it in the hop trade.

5524. Do you think that the business of a factor or merchant arises out of the necessity of the case?—Yes.

5525. You think it is necessary to have the article brought to a market where the class of people dealing in it will go?—Yes.

5526. And who will bring large quantities in the market together, and will regulate the price, whereby you are enabled to go to a better market than if you were wandering about, selecting portions here and there?—Yes.

5527. Mr. *Bass.*] A great many of the brewers in the Midland Counties and in Kent, who have very large concerns, would find it very inconvenient to come from those distant counties into Kent and Sussex, to deal with the farmers, would they not?—Yes.

5528. Mr. *W. Martin.*] Do you know whether they deal through the intervention of a merchant in Leicestershire and in Worcestershire?—I am not sufficiently

Mr. *C. Leney.*

13 July 1857.

sufficiently acquainted with the hop trade of those counties to be able to answer.

5529. *Chairman.*] You are a brewer and a hop-grower, will you allow me to ask whether you buy the hops of any other planters?—Only a very small proportion.

5530. In that case do you buy from the factor and the merchant?—We consume our own.

5531. But when you do buy, how is it?—We buy of the growers direct; the reason being that the growers are customers of ours.

5532. Sir *Edward Dering.*] Do you not consider it an advantage buying the hops direct from the grower, rather than buying them through a factor and paying him a commission?—I should have sufficient confidence in my own judgment to purchase hops of a grower, but I do not imagine that the majority of the brewers would have the same confidence in their judgment.

5533. Is it not the practice in general to have somebody attached to a brewery who understands something of the quality of hops?—I am not aware of it, and I think Mr. Bass will agree with me that very few brewers know a Golding hop from a Grape.

5534. Mr. *John Locke.*] Is there anything to prevent the brewer buying of the planter if he pleases?—Certainly not.

5535. Do you suppose that he finds it more advantageous to go to the factor?—Yes.

5536. *Chairman.*] We were told the other day by a witness, that if the grower were to sell his hops direct to the brewer, the factors would refuse to sell them for him another year; can you say how that would be?—I cannot, I have no knowledge about it.

Mr. *Henry T. Smith*, called in; and Examined.

Mr. *H. T. Smith.*

5537. *Chairman.*] YOU are a partner in the firm of Pattenden & Smith?—Yes.

5538. Are you merchants as well as factors?—No, we are factors only; but when purchasers come into our counting house, of course we do not turn them away. We are bound to sell to every one that comes to us, and has his money to pay for the article.

5539. Is your business confined to selling as agent for the planter?—Exactly; we do not seek any brewer's trade at all; our business is to sell on commission for the growers.

5540. You do not buy hops yourselves to sell on your own account, do you?—We do occasionally, because there are times when we cannot get a sufficient supply without purchasing, and in order to keep our boards well supplied with such hops as are required by the merchants, we are obliged sometimes to purchase.

5541. Is that the case with most of the factors?—Yes.

5542. At times they buy and sell on their own account?—Exactly, merely to keep a supply on their boards.

5543. Some do it more and some less, I suppose?—Yes.

5544. What is the regular commission that is paid?—It is 3*s.* per pocket, when the price does not exceed 60*s.*; when the price is between 60*s.* and 5*l.*, it is 4*s.* per pocket; and when the price is above 5*l.* and under 8*l.*, it is 5*s.* per pocket, and over 8 *l.*, 6 *s.* per pocket.

5545. What did you say it was when it was under 60 *s.*?—When it is under 60*s.*, it is 3*s.* a pocket.

5546. It is paid for by the pocket, is it?—Yes, by the factors guaranteeing the growers.

5547. What is the weight of a pocket?—It varies between a hundredweight and a quarter and two hundredweight.

5548. The commission does not vary with the weight of the pocket, does it?—No.

5549. Are all hops sold in pockets?—In bags and pockets.

5550. How do you charge with respect to the bags?—It is two shillings more for a bag than for a pocket.

5551. Do the bags vary in size?—They are similar to the pockets; it is impossible to get the exact weight.

Mr. *H. T. Smith.*

13 July 1857

5552. Sir *Edward Dering.*] They are about double, are they not?—They are from two and a half hundredweight to two and three-quarters.

5553. Then a pocket is about half a bag?—About two-thirds.

5554. *Chairman.*] Is there a uniform charge for warehouse?—Yes; a penny per pocket per week, including insurance.

5555. And how much for the bags?—That is a penny halfpenny.

5556. How is the business of the factory conducted; are there factors for a particular district, or particular prices, or particular persons?—No; we are open to receive consignments from all.

5557. But, practically, do you not get your commission in one particular part of the country?—In Sussex and the Weald of Kent more particularly.

5558. Is that the case with all the firms of factors, that each has his connexions in one particular part?—Exactly.

5559. Are they all Sussex hops that pass through your hands?—No; we have hops grown in every district, but more particularly in Sussex or the Weald of Kent.

5560. Several of the planters have told us that when they growed different kinds of hops they sell their crops in the lump; is that the way that you sell hops?—No; the hops are consigned to us duly after they are grown, and we sample them on arrival, and they are passed out on our boards and sold, of course, at the market price. We never lump them at all unless the grower gives instructions. We act under instructions entirely.

5561. But, generally, you would divide the hops according to their different kinds?—Yes, we should, in order to obtain the correct value. Many times in lumping the lots we should not get a proper market price.

5562. You say you sell all kinds of hops; can you tell the Committee what is generally the difference in price between the different kinds of hops; supposing the best kind of Goldings were selling at 100 *s.*?—For the year 1856 the average price for the different growths, as near as I can collect it, appears to have been, for Mid-Kent hops, the average price was about 78 *s.*, East Kent, 84 *s.*, Weald of Kent, 66 *s.*, Sussex, 63 *s.*; that is for the last growth that has been sold up to the present time since September.

5563. Is that about the ordinary range of difference, from the East Kent at 84 *s.* and the Sussex at 63 *s.*?—Sometimes there is a very much greater difference, according as the crop in each district varies; the shortness of the supply would of course increase the price, whichever district it happened in, except Sussex, and that is invariably the lowest.

5564. On an average of years, should you say the difference between the best and the worst kind of hops was greater or less than the amount you have spoken to?—I think the difference is less this year, but that on an average of years it would be rather greater.

5565. Sir *E. Dering.*] How much should you say?—Generally East Kent hops are higher in proportion than they are this year.

5566. How much?—Ten shillings per hundredweight more than they are this year.

5567. *Chairman.*] With respect to the East Sussex hops at 63 *s.*, that is the average of the different kinds of Sussex hops, is it?—Exactly.

5568. Some Sussex hops sell for a little more and some for a little less?—Yes; this is the average, taking the medium between the highest price and the lowest.

5569. What would Sussex Colegates be?—They would fetch about a medium price; they are not grown very well; generally they are not so whole and full.

5570. Are they often below 63 *s.*?—It all depends upon how the growers get them in; if they get rough weather, of course the colour is destroyed by the winds, and the best coloured Sussex hops fetch the best prices; the Colegates fetch about as low a price as any.

5571. If the average price of Sussex hops were 63 *s.*, what would the price of the best Sussex hops be, and what would the price of the lowest Sussex hops be?—The best would be about 68 *s.* and the lowest about 52 *s.*

5572. If the East Kent hops were sold on the average at 94 *s.*, what would be the highest price those hops were fetching?—I should think the East Kent hops would vary in about the same proportion, not less than 1 *l.* a cwt., and often 30 *s.* There are four classes of hops: the Goldings, the Colegates, the Grapes,

Grapes, and the Jones's. The Goldings would vary at least 2 *l.* per cwt. in many years. Mr. *H. T. Smith.*

13 July 1857.

5573. Do the country buyers now come generally to the Borough to buy hops?—Of course, it is the quick communication that has induced them to do so; formerly they have only done so very rarely; but now, if a man wishes to lay out his money to the best advantage, he comes himself, and buys in the London market.

5574. Is it the brewer or the country merchant that buys?—Both; the country merchants attend very regularly every week.

5575. Do the brewers themselves come?—They are getting more into the habit of it of late years.

5576. Sir *E. Dering.*] Do you think the habit of dealing with the planter is increasing or not?—I think country merchants of late years have sprung up as buyers and dealers with the growers, but they find their market for the hops in the Borough through the factors generally.

5577. Do the merchants and brewers come from all parts of the country to buy in the Borough; such as the Scotch and the Irish brewers?—No, very rarely. The merchants keep their travellers, and they go through the country; the trade is done principally by the merchants' travellers.

5578. Do they buy by samples?—Yes.

5579. Do you send the samples to Scotland and Ireland?—No; we are between the grower and the merchant; receiving consignments from the growers, and selling to the merchants in the Borough.

5580. You sell to the merchants or the brewers, as the case may be?—Yes, we sell to any one who comes with the money in his pocket.

5581. *Chairman.*] Have you any dealings in hops grown in Worcestershire and Herefordshire?—Very rarely.

5582. Do those hops come to the Borough at all?—No, I think nine-tenths are sold at Worcester, at the Worcester hop market. There is a wide difference between the Worcester hops and our hops.

5583. Do you know the price the Worcester hops fetch as compared with the best Kentish hops?—It depends entirely upon the extent of the crop; last year they grew a small crop, only about 5,000 *l.* old duty.

5584. How do the Worcester hops that come to the Borough find their way there?—They are bought by our London merchants at Worcester market, and then find their way here.

5585. How is it with the Farnham hops?—Three-fourths of them are sold at Weyhill fair.

5586. Do any of the London factors or merchants attend Weyhill fair to buy hops?—They do attend to buy Farnhams, and also to sell Kents and Sussex by sample.

5587. With respect to the manner of your dealing with the brewers, is it the system generally that the brewers get a long credit for the hops they buy?—Our dealings are with the merchants, and therefore I cannot answer that question.

5588. Are your dealings with the merchants ready-money transactions, or do you go upon a system or credit?—Our dealings are for ready money; if we draw a bill, then the bank rate of interest is charged; therefore it is a cash transaction, payable every fortnight, that is every second Saturday.

5589. Then you do in some degree carry on your business on a system of credit?—Of course it would be impossible we could sell the whole of our hops for cash; the prices would be driven down, unless we took bills in payment.

5590. Do you often have applications from the planters for accommodation?—Yes, more particularly after two or three crop years like the present; the growers become more needy, in consequence of the price having been reduced by over-production.

5591. Do those applications generally take place when the payment of a duty is at hand?—Yes, more particularly on those occasions; the heavy payments are in November; there are the rents, the duties, and the tithes, coming all at once, but it happens fortunately that they come at a time when our demand is on to the fullest extent.

5592. Then, in point of fact, you intervene between the brewer and the grower?—Between the merchant and the grower.

Mr. *H. T. Smith.*
13 July 1857.

5593. And you are enabled to find the grower the money he needs at a moment at which he could not perhaps obtain it from the brewer?—It is convenient for the grower of course many times to apply to his factor.

5594. And it might not always be convenient for the brewer to pay down ready money?—It would be out of his line of business altogether to deal with the grower.

5595. Mr. *Bass.*] But if I understood you rightly, the brewer does pay ready money to you?—No; we have nothing to do with the brewer; we are between the grower and the merchant.

5596. Sir *Edward Dering.*] You did say that you do deal with the brewers when they come to you?—Yes; but among the whole of our connexions we have not more than two brewers who deal with us, and those are in a very small way.

Jovis, 16° die Julii, 1857.

MEMBERS PRESENT.

Mr. Beach.	Mr. Dodson.
Mr. Bass.	Mr. Beresford Hope.
Mr. B. Blakemore.	Mr. John Locke.
Mr. Brand.	Mr. Wykeham Martin.
Sir Edward Dering.	Viscount Pevensey.

JOHN GEORGE DODSON, Esq., IN THE CHAIR.

George Darby, Esq., called in; and Examined.

G. Darby, Esq.
16 July 1857.

5597. *Chairman.*] ARE you a practical hop grower?—Yes; I have been a hop grower nearly 40 years. I am only a small one now; but I have taken a great interest in it.

5598. Is it your own land that you grow hops upon?—Yes.

5599. Have you also represented Sussex in Parliament?—Yes, I have.

5600. For how long?—For nine years.

5601. When did you retire from Parliament?—I think it was in 1845.

5602. Your attention has been a good deal turned to the hop question?—Yes. I went up in 1842; I met all the hop growers from the different counties in England at an hotel in Bridge-street, and headed a deputation to Sir Robert Peel and Mr. Goulburn, who was the Chancellor of the Exchequer, upon the question of reducing the Customs duty from 8 *l.* to 4 *l.* 10 *s.*

5603. Did you head a deputation in favour of a reduction of the Customs duty?—No. I maintained, upon the part of the growers, that, inasmuch as there was an Excise duty upon hops, and that the demand for hops was limited by the consumption of malt, we had just as much right to protection as they had in respect to the importation of malt. That matter was argued at the deputation upon the point, and from that point they would not be driven. It was said that 4 *l.* 10 *s.* was as much a prohibition as 8 *l.*; but I said that if it was intended to be a prohibition, they had no business to alter it, and they would not have altered it unless it was altered for something.

5604. Do you look upon the present duty as a protective duty, or as only a countervailing duty?—A countervailing duty is a protective duty. The duty has two operations; in the first place, it is to protect the grower and the revenue; in the next place, to put an Excise duty upon home-grown malt; but to remove the Customs duty on hops, and leaving the Excise duty on malt, would be an act of the grossest injustice, as must be evident.

5605. Do

5605. Do you consider that the present Excise and Customs duties put the English grower in a more favourable position than the foreign grower, or that they are upon an equal footing?—If you will allow me, I will state consecutively what in my view the question is: I think that the duty upon malt operates in fact now as an additional duty upon hops; and for this reason, that the consumption of hops is regulated entirely by the consumption of malt (and I will show clearly presently that it does); if you restrict the consumption of malt by any artificial regulations, to that extent you must restrict the consumption of hops, the consumption of hops being dependent upon the consumption of malt; and therefore I think that if the Customs duty was taken off hops, the growers in this country never could be satisfied without a corresponding reduction or abolition of the malt duty; it would be such a clear injustice. Now the Customs duty upon hops has been lowered from 8 *l.* to 2 *l.* 5 *s.*, and during that time not only has the Excise duty been kept on, but five per cent. has been added to it. If you would reduce the Excise duty upon hops, and would guarantee me a Customs duty as long as the malt duty remained on, of course there might be no ground of complaint; but unfortunately the current has run the other way. As I have stated, while we have been raising this question, the Government have been quietly reducing the Customs duty till it has got down to 2 *l.* 5 *s.* Now take, as an illustration, the case of the duty on raw cotton. When the conflict about the duty was brought on in 1842, the agriculturists were told that it did not at all matter to them, for that the consumer paid it; but the cotton-spinners, as regarded the duty on raw cotton, were not at all satisfied with this argument. They said, "This 600,000 *l.* will be paid by the public, but it affects us most materially, because it restricts our consumption of cotton." Now, if by taking off the duty upon hops you could insure an increased consumption of them, there would be of course a strong argument; but I cannot see how it would have that effect at all; because as long as there is a restriction upon the consumption of malt, to that consumption of malt the consumption of hops must also be restricted; and therefore I look at it in this way:—assume, for the purpose of argument, first of all, that the hop duty is (as I understand it has been said to be) paid by the planters; it is 19 *s.* 7 *d.* in all, including the old and new duty, and five per cent. Then I understand one argument is, that if that was taken off, it would lessen the cost to the planter of the production of hops. But if they were to take off the Customs duty of 2 *l.* 5 *s.* as well as the Excise duty, I must assume that the foreign planter would lessen his price of production by 2 *l.* 5 *s.*, and we should lessen ours by 19 *s.* 7 *d.*; and therefore I do not see that we should gain by that, because the cost of our production would be lessened 19 *s.* 7 *d.*, and that of the foreigner would be lessened 2 *l.* 5 *s.* Another thing which has been stated is, that it is thought that this change would get rid of the factors and of the betting. Now, as to getting rid of the factors, I am afraid that if they are an evil, they are a necessary one, and for this reason: I sold hops for two or three years into the west of England, but was obliged to have references to bankers, and so forth, which entails great trouble; we occasionally grow many more hops than are consumed in a year, but they are purchased by persons on speculation, and they often go from hand to hand before they come into consumption; and my belief is, therefore, that whatever is done with the duty, you must have a factor, as you have in every other trade. And, therefore, as the trade is in London, you must have some place for sending the hops up where they may be sold, and especially where they do not go into immediate consumption; and the only way is through the factors, at least I have never ascertained any other way of doing it. Then another thing is this: it has been said that the planters borrow money upon their hops. Now I have inquired very extensively in other departments, and I do not know of any other trade in which the factor does not advance money upon the goods consigned to him; I do not believe that it is confined to the hop trade; I am informed by a person, who knows very well, that the factors in the corn trade advance money upon drafts at sight. I think the question was asked in this Committee, whether foreign hops, when the duty was taken off in 1854–55, had not been used for scarecrows. The fact of the matter is, that there are English hops which have been kept some time that are not worth the duty; but I think a strong inference may be drawn from the fact that, in 1854 and 1855, hops represented by 58,000 *l.* old duty came in, and I draw the inference from that,

G. Darby, Esq.

16 July 1857.

that if the duty had been off before, these hops would have found their way in before; would have been pushed into this country in competition with our hops at a time when we did not want them. Now that the consumption of malt is affected by the duty, I think one cannot help believing it is perfectly true that there may be a change in the habits of the people; and it is also true that the price of barley may affect the consumption; but I have made a calculation of the consumption of malt from 1723 to 1857, and the fact which I am about to mention was spoken of by Sir Robert Peel. In 1723 the duty was 4 *s.* upon malt; and the calculation I have is this: that about five bushels per head were consumed. Then, when the duty was at 20 *s.* 8 *d.* (I think that in 1829 the duty was put on to 20 *s.* 8 *d.*), the consumption was calculated at one bushel and six gallons a head instead of five bushels; and in 1830 the beer duty was taken off, and the consumption then was two bushels and two gallons a head. Now you have had a duty afterwards put on of five per cent. and the consumption then was about one bushel and four gallons a head. Since that you have had 10 *s.* duty put on; and what has been the result? The 5,000,000 *l.* ought to have been raised to something like 7,500,000 *l.*, but, in point of fact, it has only been raised 1,000,000 *l.*, showing a falling off of 1,000,000 qrs. in the consumption of malt, we thereby losing the market for our hops to the amount of one-fifth.

5606. Mr. *Bass.*] Had that nothing to do with the prices of hops of this year?—No; with great deference I should say not; I think perhaps the price of barley might have an effect, as I have always felt, and that I must not press that too far. But if, from the year 1723 to the year 1857, I find invariably that the consumption of malt is in the inverse proportion to the amount of the duty, then, I say, that it is a fair inference that the duty must affect the consumption of malt.

5607. Are not you aware that the lowest amount of duty upon malt was in that very year when the highest price was paid for hops that people had known for the last forty years?—Yes, that may be true, but still, except in bitter beer, the cost of hops is so small, compared with the cost of malt, that it cannot make much difference. I have never known the price of hops affect the price of beer.

5608. Is the Committee to understand that it is your opinion that the duty on malt was the main cause of the increased or diminished consumption of malt?—I gave the figures of the consumption of malt in the country at the different periods as the duty had been raised or lowered; it is for the Committee to draw the inference, but I say that in every case, as the duty upon malt has decreased, the consumption of it has increased, and that when you took the beer duty off, the consumption of malt increased.

5609. Will you state your own inference from those facts?—My inference is that if the malt duty was off, you would have a large increased consumption of it. But I beg leave to say, that seeing the difficulties of such a course when I was in the House of Commons, I never voted for taking off the duty; but I am certain that if you take off the Customs duty upon hops, the Chancellor of the Exchequer will have more difficulty with the malt duty than he ever had upon hops.

5610. You said that, looking to the consumption of hops, you thought that the price of hops had had such an indirect influence upon the price of malt, that it did not affect the consumption of malt?—I think not.

5611. Can you give us an example from your private brewing how much hops per quarter are used?—I think something like 8 lbs. or 10 lbs. per quarter I use.

5612. What do you reckon to be the difference between the average price of Sussex hops in the year ending with the crop of hops grown in 1854, and the price paid for Sussex hops in 1854–55?—I forget what the Sussex hops were; I think for a short time there was an immense rise, and then a fall in the price; but I do not think a brewer has a right to take a particular year, because I have never found out that when hops were 60 *s.* or 62 *s.* any reduction took place in the price of beer in consequence.

5613. Are not you aware that there has been an advance and reduction in the price of beer in some quarters in consequence of the advance and reduction in the price of hops?—I understand that, in that year, the price of beer was raised by one or two or three houses; but it was not generally raised, and I have understood that to be the fact.

5614. You

5614. You were speaking of the great fall in the consumption after the war duty of 10*s.* a quarter was recently put on in the year 1854; now I will endeavour to draw your attention to the fact, that in that very year the price of hops was greatly increased, and I am anxious that you should be kind enough to tell the Committee, if you have the materials in your mind, what was the difference in the price of Sussex hops between the year 1854-55 and the average price of Sussex hops, which is about 74*s.*?—I sold my hops early that year. I sold mine for 17*l.* a cwt.

5615. Are you aware that some of your neighbours sold at 20*l.* a cwt.?—They did about the time of Robertsbridge fair; but it did not last a week; everybody that bought them lost money by them. I got 17*l.* a cwt. for my hops after that.

5616. Then if you admit my proposition, that the general price of Sussex hops is about 74*s.* per quarter, and that year you got 17*l.*, which, speaking in round numbers, gives a difference of 14*l.* a cwt., are you aware how much per quarter, taking your own consumption of 10 lbs. per quarter, the difference between 3*l.* 14*s.* and 17*l.* comes to?—It is not very difficult to calculate, it would be half-a-crown a pound.

5617. Ten half-crowns make 25*s.*?—Yes.

5618. Then that comes to 3*s.* 4*d.* more than the entire duty upon a corresponding quantity of malt, which you say is so prejudicial to the consumption of malt?—Yes, but you forget one thing; you are taking a particular portion of a particular year, for I sold some of my hops very much below 17*l.*; I got nothing like 17*l.* I only know one person that sold hops at 20*l.* In consequence of the high prices, I sent my hops as fast as I could bag them up to London, and I know that for those which did not get up in a very quick time I did not get 17*l.*, or anything like that; that was a particular time of a particular year, such as no planter has known for the last 40 years, and certainly you should not be guided in legislation by a week in a year such as never was known before.

5619. Then suppose I were to tell you that in a large house that I am acquainted with, where 8,000 or 10,000 cwts. are used in a year, and more than that, the difference between the average prices and the price of that year were at least for the whole season 14*l.* a cwt.; would not that explain to your mind in some degree the cause of the greatly diminished quantity of malt consumed in that year?—No; I consider that if you show that in that particular year the consumption of malt was governed by the price of hops, you could not do away with the fact, that for more than a century down to the present time invariably, the consumption of malt has varied inversely with the amount of the duty; nor would it do away with the fact, that when you did away with the duty on beer it increased the consumption of malt in the country.

5620. I want to draw your attention to the fact, that the brewing of beer is burdened with 22*s.* or 24*s.* a quarter of duty upon malt, and its consumption is diminished or impeded thereby; may not the same consequences ensue in any one year where, from the extreme prices of hops, a burden of equal amount falls upon the consumer of beer?—I do not believe that if you take it for 30 years you will find that to be the case, and you have selected about a week.

5621. I am speaking of the price of the whole year?—All I can say is, I could get no such price for my hops. In the year 1840 there was a great blight, where there were hundreds of acres that had not a bin in them. I had the good fortune to grow some hops that year, but they never fetched the price that year that they did in that particular week, for some reason or other. I do not know when hops were subject to anything like the rise and fall that they were in 1854-55. I sold immediately. A man near me held. It is said that the planters do not hold their hops; I differ from that. I know planters who have 1855 hops now; but I very seldom hold hops; and in nine times out of ten the best price is soon after they are picked. I would venture to say that in 20 years you would find that to be the fact; but I say that in the year 1840, when there was a great blight, hops were not sold at the price that they were in that week. I am sorry I have not the figures here, but I know positively that it only was the hops that I sent up, pressing them up to London as quickly as I could, which were sold at that price. There was an immediate fall in the price. The price for our hops upon the average may be 74*s.* You

G. Darby, Esq.

16 July 1857.

may take up a particular year and a particular week, but if you go into the average number of years, there is no doubt that what really affects the beer is the price of barley and the price of malt; and I have no doubt that the price of barley upon a particular year has an effect also upon the consumption of malt; but then upon the other hand, if I go from the year 1723 to 1857, and I find that invariably, without an exception, the consumption of malt varies inversely as the amount of the duty upon malt, and I find that when the beer duty is taken off, the consumption of malt doubling, I cannot draw any other inference than that the Excise duty upon malt must be paid by the consumer, and that there is less consumption when the duty is higher than when it is lower.

5622. I understand you to be endeavouring to impress upon the Committee that the consumption of malt depended entirely upon the imposts that were levied upon malt?—I cannot disguise from myself that there may be other causes; but at the same time that you have been putting the duty on malt, you have been reducing the duty upon tea, and if you raise the price of one thing, and you lower the price of another, you must change the habits of the people.

5623. Will you confine your discussion to the proposition that I understood you to make, that during the last increase in the duty upon malt during the Russian war, which began in 1854, the consumption fell off?—I only got this by the returns; in fact, instead of raising the duty to 2,500,000 *l.* as the additional 10 *s.* ought to have done, if the consumption had remained the same, it only raised it 1,000,000 *l.* And, therefore, the evident inference is, that the falling off in the consumption of malt is 1,000,000 of quarters.

5624. Mr. *Brand.*] Is not it the fact, that the price of barley rose very much in that year?—I think it is impossible to disguise from ourselves that the price of barley might enter into the calculation of the year; but that deals only with the falling off in the consumption of malt upon one occasion, and I think very little could be drawn from it; but if I go back for more than a century, I find that whenever the Excise duty is put on, there is a falling off in the consumption; and when I find that in the particular year that the beer duty is taken off, it doubles the consumption, I do not say it is absolutely conclusive, but the inference may be fairly drawn from it, that the duty must affect the consumption; I am not saying that, with the opinion of the income-tax and so on, the Government could take off the malt duty; my argument is this, that if you confine the consumption of malt by your artificial regulations, you have no right to give free trade in an article the consumption of which entirely depends upon the article which you keep in an artificial state.

5625. Mr. *Bass.*] You have clearly laid before the Committee your opinion that the consumption of malt is dependent in a great degree upon the duty which is imposed upon it, and I am anxious to learn from you whether you would persist in that opinion, if it should appear that the excessive price of hops in one or two years, there being an additional burthen upon the consumers the brewer of the beer has not calculated for to the amount of the whole duty on malt, acts to produce a further decline in the consumption of malt?—I cannot say, that if hops were at such a price as to affect beer, it might not be so; but I do not think it is so, because I find in one particular year, and in one particular week, I have to give a high price for them. If you tell me that the average of those years is 74 *s.*, then I say that, in that series of years, I cannot believe that it materially affects or tends to affect it. Seventy shillings a hundredweight would be about 8*d.* per pound: now, one pound of hops to the bushel of malt is about the amount in common beer. Malt is at 8 *s.*, 10 *s.*, or 12 *s.*; but I will take it at the price of 8 *s.* Then, if you take the price of hops, which will be about 8 *d.* a pound, you will have 8 *d.* to 8 *s.*, and, giving half a pound more, you will have 1 *s.* to 8 *s.* And I say, if one ingredient costs 1 *s.*, and the other 8 *s.*, I think the consumption of that which costs 8 *s.* must have much more effect upon the price of the article produced than the one which costs 1 *s.* has.

5626. Are you advising the Committee to a reduction of the duty on malt?—I say if you take the Customs duty off hops, the effect of it in my county will be this: that in the first place it will throw the population out of employment; in the next place there is a serious matter that has not been touched upon, which is, that in my part of the county, and in a great part of the Weald of Sussex, the fuel of the poor entirely depends upon the wood which they grow for hop poles where faggots are grown, which the farmers constantly carry for the poor to their houses. Their fuel entirely depends upon the wood, and if they

they were to get coals, they could not buy them, and they do not buy them in at less than 20 *d.* a cwt. Therefore if you put us in competition with the foreign hops so that we cannot grow them, you will destroy our means of employing the population, and I believe that the consequence will be that the wood land will be worth nothing for the sake of the hop poles at least, and I believe that the consequence of that will be that you will destroy the means of the people being provided with fuel in the county.

5627. How would the production of hops in Sussex be destroyed by the importation of foreign hops?—Simply for this reason: I had in 1842 considerable correspondence from America, and I have since seen American farmers in the year of the Exhibition; I had long conversations with some of them who were hop growers. I am sorry they are not here; and they expressed their extreme surprise at the manner in which the hops were managed and asked me how it was done. I found that the export price of American hops was very low; I think something like 40 *s.*; but at the same time, I am quite aware that the American hops are mismanaged, and that they are not liked, and cannot be used here; in fact, they do smell very badly of pine wood; but my firm conviction is, from what they told me, that if they got good dryers, an amount of hops would come into competition with our Kent hops. The Farnham sets grow there; and, if I am not much mistaken, English capital is gone into Bavaria, and there are kilns erected with English capital, and there are English hop growers there, who not only grow their own hops, but dry the green hops of other parties, which come into competition even with the duty in this country. Therefore my belief is, that if you open the market to the foreigner, you will find that he will drive English grown hops out of the country; if I am not mistaken, they grow both the Goldings and the Grapes in Bavaria. At present, of course, the duty is a restriction on their coming in here; but what I believe is, that if you once take off the Customs duty, you will not be able to compete with the foreign hops.

5628. That is to say, that you will drive down the prices, so that the Sussex hops could not be grown?—I could not grow them.

5629. Would not the consumer of beer have some benefit from that?—No, I do not think he would; I much doubt if he would obtain any. I will take the consumption of this country at 200,000*l.* old duty; if when I get a paying price for my hops, it is worth while for the foreigner to bring them in, and thus drive us out of the market. I believe that hops now, upon the average of years, will pay well.

5630. In Sussex?—That is my opinion; many others have a different opinion. I think, upon an average of years, they pay; but if, every paying year, I am to have the foreigner come and put down the price of my hops, I shall have to give up growing; and if I were to have the foreign duty taken off, I should grub all my hops.

5631. What would be the result of that?—You would be entirely dependent upon the foreign supply, and I do not believe that the consumers would gain by it.

5632. Do you believe that by that process we should not have a permanent reduction in price?—You would have a great fluctuation in price.

5633. Should we have a permanent reduction in price?—I do not know.

5634. Is not it a permanent reduction alone that can drive your hops out of cultivation?—What I mean is this, that if you reduce the duty, so that the moment it gets hops to a certain price, the price is beaten down, I cannot afford to grow them upon the average number of years. I can afford now to lose for a year. Taking the last three years, I got a great profit the first year, but last year I have been a loser; but if at the moment I put anything into my pocket you are to beat me down, how can I grow them?

5635. You told us that in 1854 there were 59,000*l.* of old duty upon the foreign hops imported, and that you got 17*l.* a hundredweight upon your hops?—My conviction is that the duty was taken off in August, and that the hops had not come in.

5636. Here is a return in the year ending 31st March 1855; there were 158,000 cwts.; does not that represent the year corresponding to your crop of 1854?—Yes, but my hops were sold in September 1854; but this is a statement up to March 1855. I sold just before the hops came in upon me, but when those hops came in, down went our hops.

5637. Are not you aware that in the year 1854, while you were selling your hops, there had been imported into this country 100,000 cwts. of hops?—I know that at one time they were imported upon speculation, but then the inferior hops can be kept back by the duty; but when the duty was taken off, there were all sorts of hops sent into this country. I remember in one case their being packed in Kent bags in order to be sold. No doubt a great many hops were hops which were not fit to come into consumption.

5638. Is not it the fact that the duty was taken off in August, and you did not sell your hops till September?—Yes; but I should like to know the dates of the importation of foreign hops.

5639. Will you look at that paper (*a paper being shown to the Witness*), does not it appear that there were 119,000 cwts. imported in the year 1854?—Yes.

5640. Will not you agree with me, that the greater part of those would be imported into this country before the end of November 1854?—It is perfectly true; there are those in the room who can speak to that better than myself, but I am perfectly sure that the price of hops fell something like 50 per cent.

5641. Within what period?—Within a very short period, I know that. I can very easily get a return of this and of the other hops that were sold, but I believe I am correct. They went down from 17 *l.* in a few months 50 per cent., and that was when the foreign hops came in; the reduction of duty was made without the slightest notice to anybody; it was done in a single moment, people were hardly aware of it, they did not know what could come in and what could not; and I recollect that week forcing my hops; I said, "They must be bagged, and I must get them off as quick as I can get them in. I am certain that it will not last;" and I was perfectly right; and I still think I am not wrong in saying they fell 50 per cent.

5642. Within what period?—Within three months.

5643. Did you say that hops of your character fell from 17 *l.* to 8 *l.* 10 *s.*?—My hops are among the best Sussex hops in the Borough; I cannot speak positively, but I will add that to my evidence; I will actually go to the factors who sold them, and find out what price they fetched; but I know that the price fell rapidly, and I know I was sorry I could not get them up to take advantage of the market; I am quite sure of this fact, because I know several parties in my parish who held out, as many men did, for higher prices; they thought they were going to last, and they held their hops, and I know that they were terribly bitten by holding their hops.

5644. Do not you know that the duty has been lowered 45 *s.* since 1840?—I am quite aware of that.

5645. Is it your experience that English hops were not much interfered with till the year 1854?—I think there were 46 cwt. in 1845; in 1846 there were 3,000 cwt.; in 1847, 1,000 cwt.; in 1848, 3 cwt.; in 1849, 5,000 cwt., and in 1850, 600 cwt.; and then in 1854, when the duty was suddenly taken off, without anybody knowing anything about it, at the end of the Session, if I recollect rightly; and I believe that there is not a man who held hops at that time, after Robertsbridge fair, or who bought them, if they did not go into private consumption, that did not get dreadfully bitten; but I am perfectly certain that I only sold my hops, which I sent up as rapidly as I could, at any such price, and I am certain that there was a most serious fall within the two or three months.

5646. Mr. *W. Martin.*] Have not you always observed that there has been a considerable fall in the price of hops after the first few months?—There has as a rule; I very seldom hold hops; my rule has always been this: that if hops were at anything like a fair price at Robertsbridge fair, I should be certain that they would fall before Christmas; and if they were not at anything like a fair price at Robertsbridge fair, they would rise before Christmas.

5647. How much of that fall that you mentioned do you attribute to the ordinary causes, and how much to the importation of foreign hops?—The fact is, that if foreign hops come in in any quantities for consumption in the country, they would lower the price very much; it is as plain as that two and two make four. I have not the slightest doubt in the world that the introduction of such a quantity of hops was the cause of such a tremendous fall. I only speak from memory, which is not a very safe guide to go by. If I had thought the questions would have been put to me I would have looked up the facts, but it is my impression that there was a fall of 50 per cent.

5648. Do you attribute the whole of that fall of 50 per cent. to the introduction of foreign hops?—No; I cannot say that I expected they would keep these prices, as they astonished me at the time; and they so astonished me that I said to my man, "Get my hops into market as quick as possible; this will not last."

5649. *Chairman.*] Do you think that if both the Excise and Customs duties were taken off, it would lessen the cost of production of English hops 1 *l.* and the cost of foreign hops 2 *l.*?—I do, upon that assumption. I do not say that under a particular state of the market the planter may not pay some of the duty; but neither, on the other hand, can I undertake to say that the planter pays all the duty; and therefore I took it either way; and I said, that if the planter pays the duty, and I am to take the Excise duty as part of the cost of producing the hops, then I say that the additional cost is 19 *s.* 7 *d.*; and if the foreigner pays 2 *l.* 5 *s.*, and I am to assume it is to be added to the cost of growing the hops, then there is an additional cost of 2 *l.* 5 *s.* in the one case, and there is an additional cost of 19 *s.* 7 *d.* in the other. But if, on the other hand, you say that the consumer pays the duty, then I say, that to the extent of the difference between 19 *s.* 7 *d.* and 2 *l.* 5 *s.* the duty is in favour of our planters, because the consumer who has to buy our hops will only pay 19 *s.* 7 *d.* extra price; whereas, if he had to buy the foreign hops, he would pay 2 *l.* 5 *s.* extra price.

5650. Taking either alternative, do you not take into consideration the fact that the foreigner pays the duty under circumstances that render payment of it much easier than the payment of the duty upon home produce?—The fact of the easiness of paying the duty by the foreign hops being in bond lessens the difference between 25 *s.* and 19 *s.* 7 *d.*; that is to say, that the foreigner pays less duty; and no doubt it is so, but I have been satisfied that it is utterly impossible to bond our hops. I do not think it could be done, and I have considered the subject a great deal.

5651. As between the home grower and the foreigner, if both duties were taken off, would not the relief to the home grower be comparatively more than the relief to the foreigner, because the former gets rid of the difficult circumstances under which he pays it?—I am sorry to differ with a great many of those whom I have represented, but my solemn conviction is, that if you took the Customs duty off, I must give up hop growing. Of course, if you give me less Excise duty, and permanently guarantee me the present Customs duty, I should be in favour of that; but I am convinced, from what I have learnt from Bavaria, and from seeing the hops that are brought from America and Belgium (I think the Bavarian hops are very fine; and I believe that if the American hops were managed in a different way, they would be good), and considering that hops are a thing that can only be paid for in an average of years, if, directly the paying year comes, I am to come into competition with foreigners, I must give up hop growing.

5652. The home grower has to pay the duty whether he sells his hops or not, whether he sells them well or ill, and he may pay the duty before he sells his hops, whereas the foreign grower places his hops in bond, and pays the duty at the time that it best suits him, or does not pay it at all if it does not suit him; would not the relief afforded to the home grower, if his duty were taken off, be greater in proportion than the relief afforded to the foreign grower by taking off his duty, because the home grower would get rid not only of the amount of duty, but of the other disadvantages which are now imposed upon him?—If it could be shown that the proportion of the benefit was so great as to out-balance the mischief, it is quite another thing; but if you would drive me out of the market, it is no use taking this balance into consideration; I believe that if people would show their accounts, they would admit that there is more money lost by holding hops than is made by it; and I believe great mischief has been done to the planters by the system of giving credit; and I believe that the Chancellor of the Exchequer, if he does not mean to lose anything, has one way in which he could get rid of the difficulty without practically losing; I think the best thing would be that he should wipe off the half-year's duty altogether. The Chancellor of the Exchequer would be no loser, because he might make his arrangements as to what they should pay instead of the duty. If he would wipe off a half-year's duty, my own impression is, that they should pay half the duty in November, and half the duty in April, but that should be the duty

G. Darby, Esq.

16 July 1857.

for the hops grown for the year. I think it has been said before this Committee, that the years when the hops are grown, are the years when the poor people suffer most distress. I do not assent to that; I assert that the labourers will tell you that when there is a large hop-picking, and when there is a good crop of hops, that is a good year for them. I think you will find that is a good year also with all the tradespeople. Some have told me that it makes 1,000 *l.* difference to them whether you grow a good crop of hops or not; the people spend more money, and the shopkeepers do more business. This year they have to pay last year's duty, and if they have no crop to pay it out of, that leads them into difficulty. Therefore I believe that the credit system is mischievous; if the Government can get rid of that credit by giving up a half-year's duty, I believe that it will be no loss to the Government supposing the duty continued.

5653. Do not you think that if the credit were done away with, that payment of the duty falling exactly after the picking of the hops must produce such a pressure, that nobody would grow hops except the man with considerable capital who could afford to advance the duty, and that therefore the cultivation of hops would be restricted, or the growers would be forced to bring all their hops to market, no matter what the price was, in order to get money to pay the duty?—I do not think so, and for this reason: hops are now kept on, and the hop planter does what is done by every man, I believe, in every business in this country, namely, when he consigns his goods to the factor he draws upon those goods. I have inquired in every trade in London, and I cannot find an exception to this rule, and I do not know why the farmer is not to carry on his commercial transactions upon the same principle as other persons engaged in commerce; it is done in Mark-lane, and it is done in all trades and businesses in which you have a factor, either on a *delcredere* commission or not; the consignor either gives bills or drafts, and gets advances upon the goods in their hands, and these goods are liable to these advances; and it will make no difference if I have my hops in my hands, which year's duty I have to pay, whether I sell the hops for last year's duty, or whether for this year's. The two critical times for selling hops are before Christmas and at the time when there is a question about what the next crop will be. I am now paying for the old duty; according to my plan it would be for the new; and what does it matter as to pressing the hops upon the market, whether it is old duty or new. I think the question is one that requires an answer, and I will endeavour to give one. Supposing I am growing hops this year, and in November I have got to pay my last year's duty; if I have to pay a duty, whether it is a new or an old duty, it will have the same effect in pressing the hops upon the market.

5654. Mr. *Bass*.] Did I rightly understand you to say that in the year 1854, it was within three months of Robertsbridge fair that the price of hops declined?—I think so.

5655. On what day of the month is Robertsbridge fair?—On the 25th of September.

5656. I believe you told the Committee just now that, in your judgment, free trade in hops would be unjust, because the hop grower has to contend with the malt duty?—Certainly.

5657. Would you not also believe that the grower of barley regards the malt duty as a grievance?—I know that a great many do.

5658. Is not it possible that he may think the hop duty to be an additional grievance?—I have not consulted the barley growers upon that subject, but I do not think he does.

5659. Are you a barley grower?—I do not grow malting barley, but I am very near some farms where they do grow it.

5660. You do not know what their views are with regard to that?—I have never heard them express a wish for free trade in hops.

5661. Have you ever inquired as to the quantity of land that is under cultivation in barley?—I have seen a statement of it, but I do not remember it.

5662. Are you aware that there is upon an average a yearly consumption of barley exceeding 5,000,000 of quarters?—Yes.

5663. May we assume that half as much more is used for the purpose of distillation, and the various other purposes for which barley is required?—

I cannot

I cannot exactly say; I have been out of these matters lately, but I know the amount of the malt duty.

5664. Do you think that if we were to say that 8,000,000 of quarters of barley is produced annually, that that would be an excessive amount?—I do not know what the amount of distillation is, but I know that it has not fallen off like the malt.

5665. Assuming that the quantity of barley produced through the United Kingdom is 8,000,000 of quarters, would not you consider that your neighbours who grow malting barley, and other sorts of barley, would have a good growth if they got an average of five quarters per acre?—I should not say that that was a good average in a barley county.

5666. Would not that be the average produce throughout the kingdom?—It may be so.

5667. If we take an average of five quarters per acre, would not it follow that there are nearly two millions of acres under cultivation in barley?—Yes.

5668. And that all these cultivators are interested in getting the best possible price for their barley?—No doubt.

5669. Did I rightly understand you to tell the Committee just now, that the price of hops has an effect upon the price of barley?—On the contrary, I said that I thought that it had not any effect.

5670. Not at any time?—Not at any time; I do not think that hops have ever been up at a high price, long enough to affect it; in 1840 hops were dear, and they never came to any great price again till the year 1855, that is for a space of 15 years.

5671. I find by the return which I hold in my hand, that the average price of barley for the year ending last March was 43 *s.* 2 *d.* per quarter; is not that so?—Yes, it rose high; but you are taking the highest price that there has been for a number of years.

5672. Do you suppose that the barley grower would have got 43 *s.* 2 *d.* per quarter for his barley in the year ending last March, if we had not had a very low price of hops?—I think it arose from the state of the crop; I think that raised the price of barley.

5673. Had the low price of hops no influence upon it?—I do not believe that it had any practical influence upon it, and everybody knows that the state of the barley crop was such that the price was necessarily very high.

5674. Then you are of opinion that the barley growers last year would still have got 43 *s.* 2 *d.* per quarter for their barley, even if you had got 17 *l.* for your hops as you did in 1854?—The question assumes that which I do not admit; you take the price of barley for a year, and the price of hops for a week.

5675. Did not you state that, at Robertsbridge fair, your hops, which are the best in Sussex, got 17 *l.* a hundredweight?—I did not say that my hops were the best in Sussex. I said that which was perfectly well known, that, upon the whole, my mark is one of the best in the Borough for Sussex hops.

5676. You being able to get such a price for very good Sussex hops, does not it follow that in that year there must have been, upon the average, a price far beyond the average price of hops?—I cannot tell. In the year 1840, I think I recollect seeing that hops were 12 *l.*; and I think I know a man who had a difficulty in getting 7 *l.* in that same year. I had never known hops keep up at that price.

5677. Have you ever known a year, since you have been a grower of hops, when hops kept up at a higher price, upon the average, than they did in 1854?—No. I have already said that I think that was the highest priced year that I have known, and I have also stated that I have no right to compare the price of barley for a whole year, and to say that the price of hops for a week or a month had an effect upon the price of barley for the year.

5678. Then I understand you now to say that you do not consider that the price of barley is liable to be affected in the least degree by the price of hops?—I do not think it is. I think that the effect of the amount of the crop, and the way of harvesting barley, and whether it is a bright sample, and all those things, is very great. I am in a barley county, and I know what affects the price of barley, and I know that a man in selling barley never thinks of the price of hops.

G. Darby, Esq.

16 July 1857.

5679. Is it possible, that though the farmer does not think of the price of hops, the man who buys the barley may have some consideration for the price of hops?—I think that every buyer will bring every circumstance within his reach as an argument why he should have barley cheap, but I have never heard yet (but I am not a barley buyer, though I have sold barley,) that when I have gone to a brewer, he has said, "I cannot give you so much for your barley, because the hops are 5 *l.* per cwt. instead of 3 *l.*"

5680. Taking it for granted that there may be a rise in the price of barley, never in any degree affected by the price of hops, will you tell me whether, in your opinion, the growers of 8,000,000 of quarters of barley, being consumers to some extent of their own barley in the shape of malt, are not sufferers to the same extent by the hop duty?—They are not half so much sufferers by the hop duty as the hop growers are by the malt duty.

5681. Mr. *B. Blakemore.*] Did I rightly understand you to be of opinion that the price of barley, as a general rule, is not affected by the price of hops?—It is not as a general rule; there are so many much more serious things that affect it; if you take the average price of hops it is not above 8*d.* a pound; if you take the average price of barley at 8 *s.* a bushel, nobody will ever persuade me that, those being the relative proportions of the two ingredients that go to make beer, the 8 *d.* will affect the 8 *s.*

5682. Is it not the fact that the growth of barley is general over the country, while the growth of hops is partial, and confined to a particular district?—No doubt.

5683. Is it not also the fact that hops are used for only one purpose, namely, for brewing, while barley is used for a variety of purposes, for malting and distilling, and also for feeding farm stock, and so forth?—No doubt.

5684. Therefore there is no kind of analogy between them, except that both are used for brewing, the one to give the essential liquor and the other the flavour?—Yes; but the idea involved in the question which was put to me was, that inasmuch as at a particular time hops became very dear, and entered into in the price of beer, that did restrict the consumption of beer, and thereby lessened the consumption of malt. Now my answer to that was, that in the question, a particular week of a particular year, such as no planter in the world ever remembered before, or ever expected again, was taken; and I say that it is impossible to govern general cases by such a particular instance as that, even if you could affect the consumption for more than a very short period. But I still maintain, and I believe I was right in maintaining, that there was no such fall in hops as there was in 1854, except in a particular case in the year 1817, when hops were at an enormous price, under very peculiar circumstances.

5685. Mr. *B. Blakemore.*] Are you of opinion that if the import duty is taken off, the import of hops would be steady and constant, whereas at present it fluctuates considerably, being a good deal influenced, if not governed, by the large or small growth of hops at home?—Of course, as I said before, if you were to take off the war duty, and permanently guarantee me 2*l.* 5*s.* Customs duty, I should be much obliged to the Chancellor of the Exchequer, but I complain that everything has gone the other way, and that while they have swept off the Customs duty, they have put on 5 per cent. upon the Excise duty. What I believe is this, that if you take the Customs duty off, and open the market, it will just happen as it does with everything else, this country will be the market for hops, and they will come here; and the reason why the planters will be beaten, particularly in hops, is this, that I only grow hops at prices that pay upon the average number of years. I have no doubt that I have lost this year, but I have no doubt that upon the average of three years I have gained. When hops are so low they could not bring them in from abroad; but if at the moment I am expecting to be repaid, I am to have the foreigner against me, I must give up my hops, because I cannot go on with it, and then it must be brought to an end. It is not like wheat; with wheat, if the price is low, I can grow less; and when the price is high, I can plant an extra breadth of wheat; but when my hop garden is gone, how can I plant it again; it is a thing that requires a great expense to begin with.

5686. *Chairman.*] You have expressed your opinion about the importation of foreign hops; did you not hold the same opinion as to wheat and as to wool and stock before free trade?—There is the very thing analogous to this case in the case of wool. I say we cannot use hops unless we use malt; now the effect

of

of taking the duty off wool was this, that those who formerly made coarse broadcloth, and were content with that, now make the fine cloth, and they bring the fine wool from abroad to mix up with the Southdown wool, and therefore that does not come into competition with our wool: it is just the same with malt and hops. With respect to wheat, of course the question is past now. I have been farming very largely, and I know that for several years after free trade, wheat was a much more losing produce than hops; we had 38 *s.*, 39 *s.*, and 40 *s.*; but I believe there is quite an end of the question for ever. Since that we have had a war, and we have had the gold from Australia; and we have had various things that have affected the price of wheat; but my firm conviction is, that free trade has not been tried yet.

5687. Mr. *Bass.*] Are you not reconciled to it?—I am reconciled to it, because I am reconciled to what is the law of the land.

5688. Would you have any objection to its being altered?—I should have an objection to its being altered, because I think it would do what the agitation about the hop duty is doing now. If we are always in uncertainty, and always making changes, nothing can be more mischievous; and at this moment you have the most curious event that has been in my recollection for 40 years: you had the hop duty standing at something like 140,000 *l.* or 150,000 *l.*, when this Committee met, and I do not believe you can get it done at 100,000 *l.* in the Borough; and you have hops down 4 *s.* a cwt.; they want to know what is going to be done with the duty; and if the hops are to go abroad, they say, "Is there going to be an acreage duty?" and with regard to that I may ask, how is one to get the drawback upon hops that are exported if there is an acreage duty?

5689. *Chairman.*] You have not yet stated any difference that there would be between the effect of foreign competition, between English hops and foreign hops, and the effect of competition between English wheat and foreign wheat; will you state to the Committee what your opinion is upon that subject?—I think there is a great difference. One point of difference that may be mentioned is, that when wheat was 37 *s.* a quarter, land was very much laid down for grass; and directly wheat got up again, we had nothing to do but to turn it to wheat again; but you cannot do that with hops. If your hops are gone, look at the cost of planting them again, and the question would be, where are we to get sets if you drive them all out of the country.

5690. Mr. *Bass.*] Were you in favour of Sir Robert Peel's measure of free trade in corn?—Most decidedly not; but I may say that I consider that the question of hops is a perfect anomaly, because the arguments which I have heard used by all the manufacturers, and by Sir Robert Peel, that, although it is true that the consumer pays the duty, if you put a duty upon an article, of course you must restrict the cultivation of that article, inasmuch as you increase the price of it. Now, if that is true, it is just as true as regards malt: if you raise the price of malt by the Excise duty, which all political economists tell me is paid by the consumer, of course the necessary consequence is that he consumes less, because he has to pay more for the same quantity. If that be true, inasmuch as the consumption of hops is restricted by the quantity of male consumed, the inevitable consequence is, that if you give me free trade in hops, and overload me with hops, and restrict the consumption upon malt, it is impossible but that the hop grower must go to the wall. If you say, "We will have free trade altogether," there will be some justice, and in that case no doubt the hop planter must have free trade too. But I say, do not keep me in a most artificial state by the duty on malt, which, according to all political economists, is paid by the consumer, and restricts the consumption, and then say to the grower of hops, which are regulated by the quantity of malt consumed, you shall have free trade.

5691. *Chairman.*] You have told the Committee that one difficulty in the growth of hops is that it requires a large amount of capital to bring them into cultivation?—Yes.

5692. Does not the same thing apply to foreign hops, and as to home-grown hops?—No; I put it thus: When we had a duty upon wheat under the sliding scale, when the jumps were done away with, and they resorted to rests instead of jumps, what was the consequence? We found, in fact, that still the foreign grower of wheat paid 8 *s.* duty, coming into competition with us.

5693. Would not the same expense and time which is required to raise a

G. Darby, Esq.

16 July 1857.

hop garden at home equally apply abroad?—Yes, if you take off the Customs duty, by which you prevent the planter growing hops. When hops are at a fair low price here, he says, "I cannot increase my plantation because I must keep my hops till I can bring them in at 2 *l.* 5 *s.* duty." If you take the 2 *l.* 5 *s.* duty off, then he says, "Now I may increase my plantation, because I have a market to go to whenever I choose."

5694. Do you think he would think it worth while to extend his plantation for the sake of so precarious a market?—He is doing that; I have not been there myself, but I have heard from persons who have been in the country that they are existing. People in Bavaria, at this moment, pay 2 *l.* 5 *s.* duty; and not only that, but English capital has gone into Bavaria, and the hop kilns are erected there; and not only are the hops grown and dried there, but green hops are purchased and dried and sent into this country, and very fine hops they are.

5695. Has the average price of hops become lower since the Customs duty has been reduced from 4 *l.* 10 *s.* to 2 *l.* 5 *s.*?—I am not prepared to say actually, but this I say, that the hops have come in to affect the price of English hops; a man must plant hops with a certainty of a market, or else he will not do it. It is the fact that American hops were sold, and the man who sold them thought that he had made a very good thing of it when they were in bond; but when he was told, "You are to pay 2 *l.* 5 *s.* duty," he said, "That will not do at all, I shall lose." But the fact is, that they cannot bring them here against 2 *l.* 5 *s.* duty; they may bring them, but not to any extent; they cannot do it; but if you were to take the 2 *l.* 5 *s.* duty off, I have not the slightest doubt that you would have American hops here.

5696. Mr. *B. Blakemore.*] Would they calculate upon this market as being a steady market?—I believe that hops are exported to Australia from this country.

5697. Is not the hop plant indigenous in Bavaria?—Yes.

5698. It is only so in one or two districts in this country?—I do not know whether it is indigenous here.

5699. Mr. *Bass.*] Do you think the Bavarians good?—Yes.

5700. Much better than any grown in this country?—They are very good.

5701. Have you any doubt that they are much better than any grown in this country?—I have heard they are better; I have never tried them.

5702. Is not it rather natural that the consumer of malt should feel it a hardship that he should be driven to use an inferior article?—I do not think it is inferior as to keeping the flavour.

5703. Are you aware that there was a competition and a display of hops at the Paris Exhibition?—I was not there.

5704. If I were to tell you that there was a competition, and that the producers of hops from various countries presented samples, and that the Bavarian hops were superior to the English, should you be surprised?—I know perfectly well that both the Goldings and the Grapes of Bavaria are very good indeed.

5705. Are you aware that the English hops stood sixth in the competition, and that there were five countries that were said to have produced better hops than the English?—I believe they are stronger; but then I mean to say that that is a matter of no moment, when you have a population of hundreds of thousands depending upon the cultivation, and that cultivation answers the purpose of brewing as good beer as a man would wish to drink. You would deprive them of the means of fuel and gaining a livelihood, and would throw the country into a miserable state, and I do not think the difference between the Bavarian and English hops is worth it.

5706. Will you be good enough to tell me how many acres of hops a labourer can take care of, calculating that his whole time is devoted to hops?—That requires a calculation; you must turn all the manual labour into weekly wages to arrive at it.

5707. Are you not aware that the question has been answered repeatedly by witnesses before this Committee?—I know that.

5708. How much per acre does labour cost, including picking?—That is impossible to tell, because in many years the picking varies; I have a statement here which makes it; I should be very sorry to answer this question without guarding myself. You must not apply the labour on a hop garden to the labour within

within the garden only, for this reason: it gives employment in the winter time in wood-cutting, that is, in connection with hop growing; and therefore I must calculate how much wood I must cut to supply one-fourth of the poles in each year upon my ground; and I have given it as near as I can; but you must recollect that one great thing is that you can give a vast quantity of employment to women and children.

5709. If I were to tell you that the evidence before this Committee has varied, and that some of the witnesses have said that two, and some that three acres could be cultivated by an equivalent for the labour of one man, should you be prepared to agree with it?—That may be a figure way of counting it, but it is not a practical way of counting it; the only way of deducing it is to take the whole cost of an acre of hops, men, women, and children, and wood-cutting, and when you have added all those things together, making 50*l.* or 100*l.*, then to say, "Wages are 12*s.* a week, how many twelves are there in that sum?" without doing that it would mislead any Committee. That evidence has not been given by calculating tyers. Every woman and child in the parish are dependent for their clothing upon the hop-picking, and you must take that into consideration; you must take what they earn by the children, and when you have calculated the whole price, you must find how many twelve shillings there are, and that will show you how many weeks it would take a man; that, I think, is the only way to get at it. But, in point of fact, that would give you nothing, because when you employ the population, it is a means for the women and children to earn something, so that a man who is getting 16*s.* a week goes home with 5*l.* in his pocket, out of which he may buy clothing and everything. It is a notorious fact.

5710. Sir *Edward Dering.*] What should you say was the average earnings of a man and his wife and three children in hop-picking?—It varies very much, because some very good pickers will pick 28 or 30 bushels, and some pick very much slower; but the price of picking hops has much risen, because when I first recollect it we were not so particular. The management of hops since the year 1840, in Sussex, has enormously improved, and we pay commonly 1½*d.*, that is eight to a shilling.

5711. Mr. *Bass.*] The calculation of Mr. Cutbush, who was examined before this Committee, was, that two acres of hops require an equivalent for the whole time of a man to cultivate them; in your opinion, is that within the mark?—I should not like to be bound by the statement without a calculation; but supposing you put four men to 100 acres of arable land, and you put two men to an acre of hop-garden, if you have 100 acres of hop-garden in a parish, it would take 50 men to cultivate them, whereas in arable land it will take three or four men. If you took 100 acres of arable land you would take only four men, at the outside, to cultivate them; but if you had 100 acres of hops it would take you 50 men. Unless I analysed all my expenses, I could not say.

5712. You have told the Committee that if the hop cultivation should be destroyed in this country, it would destroy the labour of hundreds of thousands of people?—Yes; you asked me for an analysis; but if you ask me what an acre of hops cost, I can give it.

5713. How do you arrive at the fact that hundreds of thousands of people are engaged in the cultivation of hops?—You are taking the time of the men employed in a hop garden, and seeing how many men that would pay, and then saying that so many men are employed. Now what I say is this, that you employ the whole population, men, women, and children; they add to their husbands' wages in that way; every cottage is shut up when the hop-picking is going on, except where there are sick persons, and every child in the cottage goes into the gardens. I can say, as a fact, that every cottage in the parish has the key turned upon it, and the whole population of the parish is turned out upon the garden; and therefore, with reference to this point, though perhaps I may be wrong in saying that hundreds of thousands of men are employed, yet I say that the population were enabled to earn that which without the hops they never could earn.

5714. Sir *Edward Dering.*] Would it be a great exaggeration if it were said that, taking one year with another, the hop-picking district, every family earns their rent and a considerable portion of their winter's fuel, by the labour upon hop-picking alone?—I think not. It is, generally speaking, clothing, I think; as far as I know there are 1,500 population in our parish; the whole of the

C. Darby, Esq.

16 July 1857.

children and those who can go to the bin and pick are employed, and the whole of the population is in the field; the cottages are locked and the population is turned into the hop gardens, the men, women, and children earning something.

5715. For how long does that last?—It depends upon how long the hop-picking lasts; it often lasts for six weeks.

5716. In the same parish?—Yes. I should think, in a full-crop year, the hop-picking was not over in six weeks.

5717. *Chairman.*] You spoke of the disadvantage to the hop grower, arising from the fact that the market was limited by the malt duty?—I think it is very great.

5718. Would not the same limitation of the market also be an injury to the foreigner?—No; the limitation would be a matter of course. When he had driven me out of the market, the foreigner would only grow to the amount that was wanted; but that would not come into the comparison between what he could grow hops at, and what I could grow hops at.

5719. The competition would be with both for a limited market?—Yes; but it is like an equation as far as the limited market is concerned; it affects the foreigner as much as it does the home grower, and you may strike out that from both sides of the equation when you come to the question, "Can I compete with the foreigner?"

5720. Do you suppose that, in the event of free trade, that the foreigner would compete with and drive the English grower out of the market by underselling him each year?—No; but my idea is this, that no man can grow hops (nor can he grow any other crop, but more especially hops), if he is to say, "If I do not grow hops this year I will not grow hops at all." He must look to the average of years; and of course the years which pay him are those when the price is better than it is when they are selling for 60 *s.*; and what I say is this, that if the foreigner is to come into the market directly I can get paid for my hops, and compete with me, I should have to give up my hop garden, because I must lose by it.

5721. If the foreigner came in and injured you in a high-priced year, would not you have a corresponding benefit in a low-priced year by having no Excise duty to pay?—No, I think not. For that to be the case you must assume that we pay the whole of the Excise duty.

5722. Did not you say that in years when hops were extremely low it was so?—I never expressed an opinion upon that; the opinion in the market must be different, because at this moment, as we are in a state of uncertainty, the hops cannot be sold; they have gone down to 4 *s.* a cwt.

5723. Do you think that the hop duty is paid by the consumer?—I believe that no man can tell the proportion that is paid by the consumer; it is like labour. According to political economy, the supply and the demand of labour regulates the price of labour, but we know perfectly well that if there are a number of labourers who are out of work, we pay about the same price for labour; but when there is an excessive demand for reaping or anything of that kind, up goes the price. It does not follow the rule of political economy exactly. I have known a guinea an acre offered for reaping wheat.

5724. You cannot say exactly that the consumer pays the duty or the producer, but it is according as the market happens to be?—I do not know why, if the planters pay all the duty, hops are so low with the duty falling down to 100,000 *l.* Because we are in a state of uncertainty, they seem to have fallen 4 *s.* a cwt. in the face of a falling duty of 140,000 *l.*

5725. Mr. *W. Martin.*] Was not that in consequence of the necessity of providing for the duty?—No; because there were no hops sold before they put off the duty; it was done before this. It has been gradually falling. The same principle affects everything; if there is an uncertainty in any trade, the trade ceases.

5726. Have you had your attention called to the proposition for a sliding scale?—I had my attention called to it, and it struck me a good deal; and I confess that I should be very sorry to give any opinion against it. But there is one thing which struck me, namely, this particular year; and I have tried it by applying it to this year. We have now a duty that you could not do at 100,000 *l.*, and we have over a year and a half's consumption in hand. What then would be the effect this next year of making a sliding scale? If you have a high duty upon the hops that are grown with this quantity of duty in hand, (you have now the duty which has gone down about 40,000 *l.* or 50,000 *l.*, but you

you have a very large stock of hops in hand,) would you like to have 27 *s.* a cwt. to pay for hops which did not fetch above 4 *l.* 12 *s.*; but at the same time I think that this is the nearest approach to an *ad valorem* duty that the thing would admit of, and therefore I should be sorry to give an opinion against it without consideration. It is said that the hop planters in Sussex have no capital; I can only assure you, and I have tolerable means of knowing it from particular circumstances, that wherever you have small wet farms and bad buildings, men of capital will not take them; but when you have good farms, men of capital will take them. My belief is, that it is a great mistake to suppose that the farmers in Sussex have less capital than other men. I believe this, that farmers, as a body, have more capital than the tradesmen in the same position, and I will tell you the reason why: in the first place, when a farmer takes a farm, he must be a year without getting any return; but in the case of the Wealds of Kent and Sussex, and part of Surrey, the farmers have a mortgage upon the land in the shape of inventory.

5727. *Chairman.*] How do you account for the distress that is perpetually existing among the hop planters, and the applications to the Chancellor of the Exchequer which have been so often made?—I quite admit that there is distress, and I admit also that if you take off part of the Excise duty and guarantee me a Customs duty, that I might not be driven out of the market by the foreigner, then I should be very glad to have that relief. But on the other hand, I should think that the distress has occurred in a great measure by that which I have already stated, the credit given for the duty; and that the only way to get rid of that is, if the Chancellor of the Exchequer would wipe out half a year's duty, and begin *de novo*, and make the duty payable upon the hops grown in the year.

5728. Was not that done in the year 1822?—Yes; but that was given up, and they returned to the old system.

5729. Do not you think that if the half-year's duty were remitted, and the duty paid as you propose, in the course of 10 years things would get back again to the same state as they are in now?—A simple remission of the half-year's duty would do nothing, because they would begin again upon the old system. Some years ago this system of credit was begun, and I say that if I have to pay for a large crop of hops in a year when I have no hops, it must distress me; and the only way of getting rid of that is by the Chancellor of the Exchequer consenting to give up half a year's duty in order to begin the payment for the hops of this year.

5730. Mr. *Brand.*] Is the Committee to understand it to be your opinion, that if the credit was not so long as it is now, there would be no distress among the planters?—I cannot say, because I do not know the particular circumstances of the planters, but I firmly believe that if you take the period from the year 1825 up to the present time, the planters have lost more by the banks than the banks have by the planters; that is my firm conviction.

5731. *Chairman.*] Are you one of the Tithe Commissioners?—Yes, but not when tithes were commuted.

5732. Could you tell the Committee whether the extraordinary tithe rentcharge in respect of hops may be taken as the measure of the value of the crop?—I must tell you that my answer must not be given as a Tithe Commissioner, for I had nothing to do with this matter; but I think I can tell you, as a landowner, how it was done. The extraordinary tithe varies from 2*s.* to 25*s.* throughout the kingdom, but I know that in many cases it is dependent upon the choice of the incumbent. Now, one incumbent might say, "Here are a great many hops—I will have an extraordinary tithe;" another might think it safer to say, "If you will take such a gross sum for your tithe, we will have a voluntary agreement to carry it out; but there is one thing I will not consent to, I will not consent to have my income uncertain beyond 10 *s.* an acre upon hops." Some others said that they would not take that course. It might have some reference to the value of the ground, but at the same time I knew that it had reference to the tithe owner not liking to depend upon a precarious income.

5733. Therefore the extraordinary tithe would be a fallacious indication of the value?—I think it would.

5734. Mr. *B. Blakemore.*] Do you know what is the amount of the annual extraordinary rentcharge?—I cannot tell you that; I think that the Committee have had a return of it laid before them.

5735. In the replies that you gave to the questions put to you as to the extent

G. Darby, Esq.

16 July 1857.

extent of labour employed in the cultivation of hops, did you take into consideration the extensive accommodation in the way of buildings, and so forth, afforded on the part of the landlord?—No.

5736. Nor the extent of labour employed in the woods?—No; I said that I could not disconnect from the growth of hops as employing the poor, the amount of labour employed in the woods at a time when other labour was dead, and that it was most important for the employment of the population.

5737. Is that a very large item?—It is a very large item.

5738. *Chairman.*] With reference to the duty which is called the war duty, was not it put on in the first year of the war?—Yes.

5739. It appears that the duty was raised in 1803, and reduced in 1805; do you know under what circumstances that was done?—I do not; but I wish to be understood perfectly as regards this. Supposing that any ease could be afforded to the hop growers, I am not against it, nor am I against any reduction if I could get a guarantee; and I also wish to say that I took the trouble of corresponding, and had a great deal of intercourse with America and Bavaria in 1842, and having come to a conclusion then, I have found nothing since to alter my opinion, that if you take the Customs duty off we could not grow hops.

5740. May the committee understand you to consider that the Excise duty is an evil to the home grower, but that foreign competition would be a much greater evil?—Yes.

5741. Sir *Edward Dering.*] And a fatal evil?—Yes.

Mr. *Henry Tilden Smith*, called in; and further Examined.

Mr. *H T. Smith.*

5742. *Chairman.*] I THINK you told the Committee the last time you were examined that you sold hops of different kinds?—Yes.

5743. Do you sell the different kinds to different classes of brewers?—I gave evidence yesterday that we have nothing to do with brewers; our position in the trade is between the grower and the merchant.

5744. Are tables published in the Borough of the prices of hops?—Yes.

5745. Could you furnish the Committee with those tables?—They are to be obtained at Messrs. Ash & Flint's; but I have the averages back to 1835.

5746. Mr. *John Locke.*] What are they taken from?—They are taken from the published return.

5747. Will you hand them in?—

[*The same were handed in, and are as follows:*]

Year.	Acres.	Average Growth per Acre.			Average Price.			
		A.	R.	P.	£.	s.	d.	
1835	53,816	9	0	5 ½	4	15	–	
1836	55,422	7	1	26 ½	5	–	–	
1837	56,323	6	2	6 ¾	5	1	6	
1838	55,045	6	1	22	5	17	–	
1839	52,305	8	0	15	4	10	–	
1840	44,085	1	2	8	13	11	–	
1841	45,769	6	2	11	6	6	–	
1842	43,720	8	0	4	4	8	10	
1843	43,156	6	1	16	6	–	9	
1844	44,485	6	2	3	7	3	–	
1845	48,058	6	3	6	6	10	–	
1846	51,948	9	2	20	5	–	–	
1847	52,327	8	2	6	3	10	9	These 10 average prices are reckoned from September to December.
1848	49,232	8	3	20	2	18	7	
1849	42,789	3	3	12	7	14	10	
1850	43,125	11	0	18	4	5	3	
1851	43,244	6	0	22	8	4	3	
1852	46,157	9	3	15	5	6	1	
1853	49,367	5	3	1	12	1	–	
1854	53,825	1	3	8	17	7	7	
1855	57,757	12	3	12	4	6	10	
1856	54,527	9	0	16	3	13	5	

5748. *Chairman.*]

5748. *Chairman.*] Down to what year is that?—To 1856.

5749. Mr. *Brand.*] Are those prices published by your firm?—No; these printers take a great deal of trouble to get them as well as they can.

5750. Upon whose authority are those prices stated?—I believe Messrs. Ash & Flint obtain them to help the sale of their paper; they give as much information as they can: I do not think them very correct, or to be relied upon within a few shillings per cwt.

5751. *Chairman.*] Are they near enough to afford a pretty correct idea?—Yes.

5752. Mr. *John Locke.*] In the year 1854 there was a quantity of foreign hops imported; was there not?—From July the 5th, when the alteration in the duty took place, reducing it from 2 *l.* 5 *s.* to 20 *s.* per cwt., there were 118,200 cwt., which is equal to 58,000 old duty imported.

5753. What description of hops were those?—For the most part very bad indeed, and a great quantity of beer was spoiled by the use of them.

5754. What quantity of English hops were grown in that year?—There were 47,000 *l.* old duty grown. The quantity of foreign hops imported in that year exceeded the quantity of the English growth by about 11,000 *l.* old duty.

5755. In your opinion, did the quantity of foreign hops imported in that year affect the price of the English grown hops?—Yes, very materially indeed.

5756. To what extent?—The prices began at 20 *l.* to 22 *l.* 10 *s.* per cwt. in September; but as soon as the foreign hops began to be imported, which took place about October and November, they fell rapidly. The Sussex hops, within four months, I may say from that time, fell nearly 50 per cent. It was not so with Kent hops; they kept their prices better.

5757. Have you any statement of the quantity of foreign hops imported each year since 1854?—In the year ending March 31st, 1856, there were 21,780 cwt., equal to 9,900 of our old duty.

5758. *Chairman.*] Where do you get that statement from?—I know that 21,780 cwt. were imported, and the old duty upon that at 9 *s.* 7 ½ *d.* per cwt., is 9,900 *l.*

5759. Mr. *Brand.*] How do you ascertain that 21,780 cwt. were imported?—By the Parliamentary return, which it is now just out, dated the 8th May 1857. In the year ending March 1857, there were 11,262 cwt. imported, which were equal to 5,000 *l.* of our old duty.

5760. Mr. *John Locke.*] What was the amount of old duty upon English-grown hops in the years 1855 and 1856?—In 1855 the old duty was 398,000 *l.*, in 1856 it was 267,000 *l.*

5761. Can you state what the annual consumption of hops is estimated at?—We will suppose it to be as nearly as possible 200,000 *l.* old duty; of course it is not to be got at exactly.

5762. *Chairman.*] That would be taking a production of 400,000 cwt.?—A pocket of hops weighs a hundredweight and a half, and the duty is about 10 *s.* per cwt.

5763. Mr. *John Locke.*] Assuming that calculation to be correct, what quantity of English hops would now be left unconsumed of the last two years' growth?—Upwards of 260,000 *l.* would be unconsumed of the last two years' growth.

5764. You have heard Mr. Darby's evidence with respect to the question of the malt duty; do you think that the present high duty upon malt limits the consumption of hops?—I have not the least doubt that it does so to an immense extent; I am of opinion that it is the sole cause of the present distress in the hop districts.

5765. What reason have you for stating that?—Only that if we refer back to the return, we find that in 1750 the population was 6,000,000, and the consumption of malt was 30,000,000 bushels; the duty was then 44 *s.* per quarter, and the average consumption per head annually amounted to 4 ½ bushels. In 1856, with a population of 18,000,000, treble the amount, the consumption was only 33,500,000 bushels, with a duty of 21 *s.* 8 *d.*, and the average consumption per head would be only 1 ⅞ bushels instead of 4 ½ bushels.

5766. Mr. *Bass.*] What was it in 1857?—The consumption of malt in the year ending 1857 was 38,178,000 bushels. It will make very little difference.

Mr. *H. T. Smith.*

16 July 1857.

5767. Mr. *Locke.*] Have you any statement of the price of beer in those years?—No; I leave that to the brewers.

5768. Has your attention at all been called to foreign hops?—We do very little in foreign hops; but of course some are very good indeed. They have improved the management of them very much since the reduction of the duty in 1854. The Bavarian hops are astonishingly good, and better than anything that can be produced in this country. I know that they are 25 per cent. better in quality, and that the management certainly is equal to that of Mid and East Kent.

5769. Sir *Edward Dering.*] Have you had any experience in yearlings?—Yes.

5770. Will yearling foreign hops deteriorate in quality as much as English grown yearlings?—I should think more so. Their system of packing is not so good as ours; they press them very tightly into bales, and many of them upon that account perish.

5771. Do you state that from your own observation?—Yes; I have seen them.

5772. *Chairman.*] Have you had any dealings in foreign hops?—Very little.

5773. From what country were those that you have dealt in?—From Belgium.

5774. Do you know anything of American hops?—Not from my own knowledge; only that we know them to be very rank.

5775. Mr. *Brand.*] What do you think of the Belgian hops?—They are better than the Americans, and inferior to the Bavarians.

5776. Are they better than home-grown hops?—They are not better than home-grown hops.

5777. Mr. *Bass.*] Are you not afraid of Belgium?—Really I do not know what their power of improvement may be.

5778. Have you the Parliamentary account of the importation of foreign hops in 1854?—I have not it with me.

5779. Are you aware whether there was a considerable quantity of hops imported before our hops came to market in 1854?—In the year ending 5th April 1854, there were 52,300 cwt. imported.

5780. How came you to tell the Committee that it was in consequence of the importation of, and after those hops came in, that the market prices declined rapidly?—It was from my experience; the first pocket of Sussex hops was sold at the enormous price of 28 *l.* 10 *s.*, or some fabulous price of that sort; but there were a pretty good quantity sold at from 18 *l.* to 20 *l.*; that was, I suppose, about the middle of September; say by the 21st of September.

5781. Did the price decline within three months of the 21st September 50 per cent.?—I think not within three months; I know that in the month of February those hops that we had been selling at 20 *l.* we could not get 10 *l.* for.

5782. That is nearly six months?—Yes; the importation of hops did not take place, or at least no quantity came in, until the latter end of October and November, although the duty was taken off in August.

5783. Was that imported from the previous growth?—Exactly.

5784. This great depreciation occupied a period up to February?—Yes; they fell 5 *l.* in about 10 days.

5785. I believe you report for the market?—Yes.

5786. Did you quote that distinct decline in the report which you sent to the newspaper?—I am not able to say.

5787. Have you any doubt of it?—Yes.

5788. Are you sure that you did not report that in that period the prices went up?—I am quite certain of it.

5789. You have told the Committee that a great deal of bad beer was the consequence of importing foreign hops in 1854?—I should say so.

5790. Do you know that from your own personal knowledge, that that was the fact?—I know it from my own taste, and also from the general dissatisfaction of every one with the beer brewed in that year. The worst beer that was ever produced was in 1854 and 1855.

5791. Are you quite clear about the time?—I am quite certain about the badness of the beer, and the complaints of it.

5792. Are you quite sure it was not 1853 and 1854?—Yes, I am certain it was not 1853 and 1854.

5793. How

Mr. *H. T. Smith.*

16 July 1857.

5793. How do you know that that beer was brewed from Bavarian hops?—They were consumed, I believe; I do not see what else they could have had. Our duty was only 47,000*l.* in 1854.

5794. Are you sure that it was not from the bad English hops of 1853 that the bad beer was produced?—I think that no English hops have spoiled beer except they were sulphured.

5795. If I were to tell you that the bad beer was produced in 1853–54, and not in 1854–55, would you say that it was contrary to your impression?—Yes.

5796. Would not you be surprised if I tell you that we did not brew good beer again till we began to use foreign hops?—I am much surprised at that.

5797. Mr. *Brand.*] Do I rightly understand you to state to the Committee, that unless the Belgians and Americans improve very much in the management of their hops, the only district which can send hops in competition with the home-grown hops is Bavaria?—Yes, the only district which can compete with the best quality of hops is Bavaria.

5798. Sir *Edward Dering.*] Have you any doubt, that if there is an open market, other countries also will have the power of cultivation, so as to compete successfully with us?—So soon as they find that it answers their purpose to do so they will.

5799. Have you any doubt that there is a capability of improving the cultivation of their hops so as to render them competitors to our market?—I believe so.

5800. Mr. *Brand.*] Have you any practical knowledge of the cultivation of Bavarian and Belgian hops?—None whatever.

5801. *Chairman.*] You told the Committee the last time you were examined that often the planters apply for accommodation about the duty-day; could you tell the Committee whether the duty has also the effect of pressing the sale about that time?—When the duty has been heavy it has had that effect.

5802. That is a well-known fact?—Yes, in the years of heavy duty.

5803. In large crop years?—Yes.

5804. Did I rightly understand you to say that the inferiority of Belgian hops arose from the want of good management, or from the inferiority of the hops?—It was from the want of good management in the curing of the hops.

Mr. *Robert M. Evans,* called in; and Examined.

Mr. *R. M. Evans.*

5805. *Chairman.*] YOU are, I believe, a hop merchant?—Yes.

5806. Is the business of a hop merchant entirely distinct from the business of a hop factor?—Yes.

5807. Do you never act as factor?—I never act as a factor.

5808. Your business is entirely confined to buying and selling on your own account?—Yes.

5809. Are you a merchant for English hops only, or for foreign hops also?—English principally. We do business in foreign hops, but very little.

5810. Your business is, properly speaking, confined to English hops?—Yes it is.

5811. If you have done any business in foreign hops, has it been in years when a scarce supply of English hops has come in?—Yes.

5812. Do you ever buy hops direct from the growers, or do you buy from the factors?—In East Kent we buy direct from the grower.

5813. Do you do so in any other parts of the country?—Very seldom.

5814. Do you buy hops from all parts of the kingdom?—From Kent and Sussex.

5815. Do you ever get Worcestershire and Herefordshire hops?—Yes.

5816. Mr. *Beach.*] Do you buy any from Hampshire, from Farnham and Alton?—Yes.

5817. *Chairman.*] When you buy from Farnham or Alton, do you buy from the planters, or through the factors?—Through the factors.

5818. When you buy in Herefordshire and Worcestershire, how do you buy?—From the factors.

5819. And also in the other parts of Kent, except in East Kent?—Yes.

Mr. *R. M. Evans.*

16 July 1857.

5820. Is there any particular reason that causes that difference in the way of buying hops in East Kent?—It has been the custom for many years to buy the best hops from the growers.

5821. Have you no further reason to give than that it is so?—No, I do not think that I have. It has been the custom always to purchase the best hops in East Kent in that way, but in Mid-Kent we do it quicker and better through the factors.

5822. Are your transactions with the East Kent growers ready money transactions?—Yes.

5823. Are the transactions with you always for ready money?—Not always.

5824. Is it the custom of the trade to let the brewers have credit?—Some brewers take credit, and some do not.

5825. What is the most general length of credit?—Six months.

5826. Is the business generally carried on by a system of credit?—As a general rule, I believe it is.

5827. Sir *Edward Dering.*] When you buy hops of the factors, is it a ready money transaction, or do they give credit?—It is always considered ready money.

5828. Is it so practically?—I think it is.

5829. Mr. *Bass.*] There are some exceptions, I suppose?—Yes.

5830. *Chairman.*] In your dealings with the growers, have you ever advanced money to them?—No; we very seldom do that.

5831. But you have no dealings directly except with the East Kent growers?—We have very trifling ones indeed; we have a few.

5832. Mr. *J. Locke.*] Is your connexion with East Kent?—It is more particularly with East and Mid-Kent; we do very little in Sussex.

5833. Do not you buy from the growers of Mid-Kent as well as from those of East Kent?—Very seldom.

5834. *Chairman.*] The Farnham hops that you buy, you buy in the Borough?—Yes.

5835. You do not attend Weyhill fair?—No, we do not.

5836. Mr. *Brand.*] Do you deal principally with the high classed hops?—Yes.

5837. *Chairman.*] When you have dealt in foreign hops, what hops have you dealt in principally?—We have generally got the best we could.

5838. From what country are those?—The Bavarian hops are the best.

5839. Are they very superior indeed to other foreign hops?—Yes, decidedly they are.

5840. Mr. *W. Martin.*] Is not there a description of Belgian hop, called the Poperinghe hop, which is very good?—Yes.

5841. *Chairman.*] Are they equal to the Bavarian hops?—No.

5842. Mr. *W. Martin.*] Are they nearly equal to them?—It requires a fine judge to tell the difference between them.

5843. *Chairman.*] Supposing there were perfect free trade in hops, would the regular foreign trade tend to steady the prices from year to year?—I do not think we should ever be safe with the prices, because we should never know how to calculate what was to come from abroad.

5844. Do you think that in every case the prices would be greater or less than they are?—I think the fluctuations would be greater, from October to December, than they are now.

5845. Mr. *Bass.*] How would they be from one season to another; would they be more likely to be more uniform with foreign importation, or not?—I should think they would be more uniform.

5846. Sir *Edward Dering.*] And more uniformly low, would they not?—Yes, decidedly.

5847. *Chairman.*] Do you send English hops abroad?—Yes.

5848. Has that system been increasing very much?—I think it has.

5849. To what countries do you send them?—To Australia.

5850. Mr. *J. Locke.*] Do you send them only to the colonies?—Principally to the colonies; but we have sent some to Russia.

5851. *Chairman.*] Have you ever sent any English hops to Belgium, to Bavaria, or to France?—We have sent some to France, but not for some years.

5852. Mr. *Bass.*] Did you ever hear of Kent hops going to Bavaria?—I think some were sent as an experiment.

5853. *Chairman.*] Do you think that in the event of there being free trade in hops with the Continent, a reciprocal trade in English and foreign hops would take place?—No, I think not, because theirs are much better than ours.

5854. What is the sort of hops that you are speaking of?—Bavarians.

5855. As to the Continent generally, would that be so?—I do not think they require the best descriptions of hops to brew their quality of beer.

5856. Do you think that in a year of large crops and low prices English hops would not find their way abroad?—I do not think they would.

5857. Do you think that they are of too good a quality to suit the foreign market?—I think they do not require them; there is not sufficient consumption over there to require our hops.

5858. Are not they liable to have years of short crops in Belgium and Bavaria, as well as we are in England?—Yes.

5859. Would not it be a mutual benefit if the abundance of one country in one year supplied the wants of another?—We do not find it so.

5860. Sir *Edward Dering.*] Do you think that the benefit derived from free trade would be a one sided benefit?—Yes.

5861. The benefit would be upon the side of the foreigner?—Certainly.

5862. *Chairman.*] Why should that be so?—Because more hops would come in than go out, especially in blighting years.

5863. Mr. *W. Martin.*] Is there any duty upon the importation of English hops upon the other side of the water?—I believe there is not; but I do not know. We do not go there ourselves; we are employed by merchants in the City.

5864. Are you aware whether there is a drawback upon exportation?—Yes.

5865. Therefore, at the present moment, there is no more reason why English hops should not go abroad than there would be in the case of free trade?—No.

5866. Do not you think that the foreigners probably would maintain their import duty if they have one, whatever we did?—They might do so.

5867. Therefore, if English hops do not go to Belgium now, there is no reason to suppose that they would go if there were free trade?—Just so.

5868. Sir *Edward Dering.*] Have you had any experience in foreign yearlings?—Yes, I have seen them.

5869. What is your opinion with regard to the relative deterioration of foreign yearlings and English grown yearlings?—Foreign yearlings, when they are managed properly, are much superior to our English grown yearlings; they do not deteriorate so much in quality.

5870. Mr. *Brand.*] What quality of foreign yearlings are you speaking of?—The best quality.

5871. Bavarians?—Yes.

5872-3. Sir *Edward Dering.*] Consequently that would give the foreigner an advantage over the English planter?—Very much so; Bavarians of the best quality, when properly managed, keep much better than our hops.

5874. Do they keep better than the best East Kent hops?—Yes, decidedly.

5875. Does not that partly arise from the method of curing?—The Bavarian hops are of a better quality; they are stronger, and better flavoured, and naturally a better hop.

5876. Mr. *Brand.*] Do you think the Belgian hops would compete with the home-grown hops?—They will with the common kind of Sussex hops in case of a blight.

5877. Mr. *Bass.*] But not otherwise?—The quality is not liked so well.

5878. Do you consider that, upon the average of years, there would be any large quantity of hops imported in case of free trade?—I could hardly answer that question.

5879. *Chairman.*] Do you think that nothing but experience could prove that?—Yes.

5880. Mr. *Brand.*] Do you know what is the extent of the growth of hops in Bavaria?—I do not.

5881. Mr. *Bass.*] Are you prepared to estimate the difference in value between the highest quality of Bavarians with which you are acquainted, and

Mr. *R. M. Evans.*

16 July 1857.

the highest quality of East Kent hops?—I should think there was 1 *l.* a hundredweight difference.

5882. Suppose East Kent hops are worth 5 *l.*, do you mean to say that the foreigners would be worth 6 *l.*?—Yes; supposing that there is no Customs duty.

5883. Has the quality of the best East and Mid-Kent hop deteriorated in your time?—Very much.

5884. Are they to be compared with what they were 25 years ago?—No; they are certainly not so good.

5885. Is not it quite possible that if they were to return to their fine quality which they formerly had, they would run less risk of competition from the foreigners?—Possibly; I do not think that they could grow the same quantity. It is the over-cultivation that does not produce the good hops.

5886. Sir *Edward Dering.*] Do they over-manure?—They over-manure.

5887. When you speak of over cultivation, does your observation refer exclusively to over-manuring?—Yes, instead of growing six cwt. they grow 15 cwt.

5888. Mr. *Bass.*] Do you know any example of a man growing hops without any manure at all?—Yes.

5889. What was the result?—Very good hops.

5890. And better than any that were grown?—Equal to any, and rather better than most; that was the result of the native energy of the soil.

5891. Sir *Edward Dering.*] Had not he a small quantity?—Yes, he never grew more than five or six cwt. an acre. The present occupier of the land, last year grew 15.

5892. Mr. *Bass.*] Was the quality equally good?—Not nearly so good.

5893. *Chairman.*] What is the cause of the very great variation in the price of hops from year to year?—It is the difference in the quantity grown.

5894. Why does not the superabundant supply in one year, make up for the deficiency of the other?—Because the hops deteriorate in quality by keeping.

5895. *Chairman.*] How much per cent. do they deteriorate in the first year?—About 20 per cent.

5896. How much the second year?—From 30 to 40 per cent.

5897. Mr. *Bass.*] And when they become "old olds," how much do they deteriorate?—Then it does not signify what year's growth they are; they hardly deteriorate in 10 or 20 years.

5898. After two years?—After two or three years.

5899. *Chairman.*] Do you think that it is solely owing to the deterioration which takes place in the year before?—Particular brewers are obliged to use a certain description of hops, which they must have for certain beer. They must have new hops to brew a particular description of beer.

5900. Then, for the interest of beer drinkers, it would be important to be able to obtain supplies of new hops?—Yes; I should say it was.

5901. Do you think that in abundant years, more hops are used than in scarce years?—Certainly.

5902. To any great extent?—Yes.

5903. What do the brewers do in scarce years?—They run greater risks.

5904. Mr. *Bass.*] In what way?—By using a smaller quantity of hops.

5905. In any other way?—I do not know of any other way.

5906. *Chairman.*] Do they ever put anything else in to make up for the want of hops?—I cannot answer that question.

5907. Mr. *Bass.*] What is the highest price that you have ever known paid by the brewers for hops?—£. 35 a cwt.

5908. Was that for new hops?—That was for new hops.

5909. What was the lowest price that you ever knew for any hops of a fair quality?—50 *s.* a cwt.

5910. Mr. *J. Locke.*] In abundant years do brewers lay in a stock of hops?—Yes.

5911. For how long?—For one, two, or three years, sometimes.

5912. Do they use those hops afterwards?—Yes, but they cannot use them wholly; they must have new hops to brew certain descriptions of beer.

5913. Can they use the hops that they have laid in in that way for the ordinary description of beer?—Yes.

5914. Mr. *Bass.*] Do they use a large quantity of them?—Yes, they must use a large quantity.

5915. Does not that apply to those who brew only inferior beer?—Yes.

5916. Is not it the fact that those who brew fine beer cannot do without a part of new hops?—No, certainly they cannot.

5917. Mr. *W. Martin.*] Does porter require the finest sort of hops?—No, the generality of porter does not.

5918. *Chairman.*] Was the high price which you have mentioned of 35 *l.* per cwt. paid in 1854?—No; it was in 1817.

5919. What was the highest price paid in 1854?—We had a very extraordinary year; I think it was 25 *l.*

5920. Did the foreign hops obtain anything like that price at the time?—No.

5921. Have you ever heard of any foreign hops fetching 25 *l.* a cwt.?—No.

5922. Mr. *Bass.*] Or 20 *l.*?—No, I think the price was 17 *l.* or 18 *l.*

5923. Mr. *Brand.*] Can you tell the Committee what quantity of Bavarian hops were imported in 1854?—No, I cannot.

5924. Sir *Edward Dering.*] I presume that that price of 35 *l.* a cwt. was only for a limited period?—Very limited.

5925. Was it for two or three months?—Hardly so long as that.

5926. Therefore there were no great quantity of hops sold at 35 *l.* per cwt.?—No.

5927. Were not those very choice samples sold in a particular quarter?—Yes.

5928. Mr. *Bass.*] Have you ever known a year since you have been in business when hops have sold for so high a price as the produce of 1854 did?—No; it was the highest I ever knew since I have been in business.

5929. In 1817, did the prices continue high so long after Christmas as they did in 1854?—No; I do not think they did.

5930. Did the high prices of 1854 continue longer in 1855 than ever you knew them?—In 1854 they were 20 *l.*, and they fell down to 8 *l.*

5931. At what period?—It was after Christmas, in about March or April.

5932. Have you any recollection of selling the same quantity of hops in March at 8 *l.* that you sold in October at 20 *l.*?—Yes; there were some I sold to you at 20 *l.*; and I find that the remaining hops of the same growth were sold at 8 *l.*; I cannot exactly say the month.

5933. Sir *Edward Dering.*] It was on the other side of Christmas?—Yes, some time after.

5934. Mr. *Bass.*] Was not it just at the end of March?—After the month of March.

5935. Do not you consider that after March is out the brewing season is concluded?—Yes.

5936. Therefore it is important whether it was after March or during March?—Quite so.

5937. Are you quite sure that you sold those hops at 8 *l.* in March?—I sold them for season beer; it must have been in March or April.

5938. Mr. *Brand.*] What is your opinion of the Belgian hops introduced into the English market in 1854, as to quality?—They are about the quality, I should say, of common Mid-Kents.

5939. When you were paying 25 *l.* a cwt. for the best English hops, what would you have given for the Belgian hops introduced upon that occasion?—About 16 *l.* or 17 *l.*

5940. Mr. *W. Martin.*] You have told us that the Bavarian hops were decidedly better than Mid or East Kent, and that much higher prices have been given for English hops than ever were given for Bavarians; how do you account for that?—Some people give high prices for certain descriptions of hop.

5941. Mr. *Bass.*] Is not it because Bavarians were not so well known at that period as they have been since?—Perhaps they were not so well tested.

5942. Mr. *W. Martin.*] Do not the two statements seem contradictory, that Bavarians should have been better than the English hops, but still they did not command the same price?—They command a better price now, being better known.

5943. Mr. *Brand.*] Is the importation of Bavarian hops increasing?—It is: and it would increase still more, if they could bring them in.

Mr. R. M. Evans.

16 July 1857.

5944. *Chairman.*] Has it increased since the Customs duty was reduced from 4 *l.* 10 *s.* to 2 *l.* 5 *s.*?—Yes, we are more accustomed to the hops.

5945. Are there many to be had if they were wanted?—Yes.

5946. Is the importation of foreign hops increasing?—Yes.

5947. I think you have told us that the exportation of English hops is increasing?—It is; that is, only to our own colonies.

5948. Could you say, that taking the two last periods of 10 years, the consumption of hops has immensely increased?—I should say it has increased.

5949. And the export of hops has increased also?—Yes.

5950. Mr. *Brand.*] Has the export of beer increased also?—Yes.

5951. Mr. *Bass.*] Could you tell the name of the grower of the hops for whom you sold me a part at 20 *l.*, and afterwards sold another part at 8 *l.*?—It was Mr. Simmons.

5952. Mr. *J. Locke.*] In that exceptional year 1854, what was the falling price of hops when 1 *l.* of the duty was taken off?—It had a very great effect upon the market to lower the prices. I remember bidding 13 *l.* for hops of 1853, and I ultimately bought them at 5 *l.*

5953. Do you consider that that fall was caused by any portion of the duty being taken off?—Yes.

5954. Mr. *W. Martin.*] Do you think it was entirely the effect of taking off the duty, or partly a panic?—It was the effect of taking off the duty.

5955. Was not the effect probably aggravated by panic?—Yes; the high prices had the effect, of course, of causing anything that could be laid hold of to be taken up.

5956. Mr. *Brand.*] What was the lowest price of good serviceable English grown hops in 1855?—There were some sold very low indeed; as low as 35 *s.*

5957. Are we to understand that there was a rise of prices in the two years of 1854 and 1855 from 35 *s.* to 20 *l.*?—The hops that were sold at 35 *s.* were extremely low.

5958. Were those hops ever brewed?—I do not know whether they were ever brewed, but that was the lowest price that ever occurred.

5959. *Chairman.*] Are your dealings principally with London brewers, or with the brewers all over the country?—Principally with the London brewers.

5960. Is there any particular kind of hops used by porter brewers?—They can use stronger hops, with less colour.

5961. Mr. *Bass.*] By "less colour," you mean really more colour?—I mean really more colour.

5962. With regard to those hops of which we have been speaking, was not there some defect in their delivery?—They had been sulphured.

5963. Were the buyers of those hops satisfied with the delivery?—They did not like them.

5964. Will not that account, to some extent, for the low price at which they were subsequently sold?—I do not think it would involve that.

5965. Mr. *W. Martin.*] You mentioned that hops have been sulphured. Has it ever been conclusively proved that the sulphur flavoured the beer?—I think it has been decidedly proved.

5966. Are you aware that Mr. Lenes, who is a brewer as well as a hop grower, has sulphured his hops?—Yes; but all I know is that I sold those very hops that Mr. Bass is speaking of to three or four different brewers, and every one complained of them, and therefore it is rather a proof that this sulphuring was very injurious.

5967. Are you aware that Mr. Lenes sulphured his own hops, and has brewed them, and he has offered to lay a wager of 1,000 guineas that no one could distinguish the beer brewed with sulphured from that brewed with unsulphured hops?—That is hardly a criterion to go by. I consider the large brewers more capable of judging. The hops I have mentioned have been found fault with by one of the first beer brewers in the kingdom.

5968. Sir *Edward Dering.*] Does not it depend very much upon the stage at which the hops are sulphured, whether it will communicate any effect to the hop?—I think it does, and I think when the hops are out in hop, it deteriorates them very much.

5969. May not sulphur be used with advantage before the hops are out?—Yes.

5970. It is only when the hops are out that the application of sulphur is likely to communicate a bad taste to the beer?—I think so. Mr. *R. M. Evans.*

5971. Mr. *W. Martin.*] Do not all hop growers use sulphur in the shape of brimstone in curing their hops?—Yes. 16 July 1857.

5972. How is that to be reconciled with the facts of the case; why should sulphur in the kiln do no harm, while the sulphur used to the hops on the poles is so mischievous?—They put it on bodily in the one case on to the hop, and in the other it is only the fumes.

5973. Sir *Edward Dering.*] In the one case it comes in contact with the hops, and in the other it does not?—Yes.

5974. Mr. *W. Martin.*] Are you aware that Mr. Berkeley, the great scientific man, has paid great attention to this circumstance, and utterly disbelieves in the deleterious influence of sulphur?—I am aware of it.

5975. *Chairman.*] At what time of the year do you generally make your purchases of East Kent hops?—In October and November; as soon as they come to market, and the prices are a little steady, we take them off.

5976. Mr. *Brand.*] Do you buy them by sample?—Always by sample.

5977. Mr. *Bass.*] Are not you aware that it was the prevailing opinion of the brewers who use those hops that they had been strongly sulphured during the growth, and that the beer was much deteriorated by it?—Yes; I have heard it.

5978. Have you ever heard that it was in contemplation to bring an action against the hop grower who had used the sulphur?—I did hear it.

5979. *Chairman.*] Are most of the East Kent hops sold in October?—The best and choicest growths are generally all sold then.

5980. That class of hops, I suppose, is almost always sold within the year?—It is always sold about that time. I do not think they ever stand over; they are generally sold before they are bought. Certain brewers take certain hops.

5981. With reference to the porter brewers, do they generally use the East Kent hops, or do the coarser Weald of Kent hops answer the purpose of brewing porter?—For a certain description of beer they are obliged to use a certain description of hop. If they were to put the best East Kent hops into running beers they would not have the effect that they would in the best beer; it would be waste to use them. They use a coarser description of hops for their common beer.

Lunæ, 20° die Julii, 1857.

MEMBERS PRESENT.

Mr. Bass.	Mr. Dodson.
Mr. Beach.	Mr. Beresford Hope.
Mr. Booker Blakemore.	Mr. John Locke.
Mr. Brand.	Mr. Wykeham Martin.

JOHN GEORGE DODSON, Esq., IN THE CHAIR.

Mr. *George Gibson Richardson*, called in; and Examined.

5982. *Chairman.*] YOU are, I believe, a hop merchant?—I am. Mr. *G. G. Richardson.*

5983. Do you deal in English hops as well as hops from foreign countries?—Yes. 20 July 1857.

5984. What foreign countries do you deal with?—Germany and Belgium.

5985. With what part of Germany do you deal?—Chiefly Bavaria and Bohemia.

5986. Are there any other parts with which you have dealt to any considerable extent?—Yes, I have had hops from Poland and from Brunswick.

Mr. *G. G. Richardson.*

20 July 1857.

5987. Can you make any statement to the Committee with respect to the growth of hops in Belgium, as to the quantity that they grow, and also as to their prices?—The amount of hops that are grown in Belgium is a mere matter of estimate; there are no statistics there; it is an estimate made by persons who are familiar with the country, and have been in the business all their lives, and from their information I should estimate the growth in the whole of Belgium, that is to say, including the small district which is on the French side of the frontier, but which is usually reckoned to Belgium, as the hops go to the Belgian market.

5988. Mr. *W. Martin.*] Have you been there yourself?—Yes; but I do not attempt to estimate the production of the country from my stay there.

5989. Have you made inquiries upon the spot?—Yes, and they are confirmed by written evidence afterwards. I have written for further explanations at various times. The estimated produce of Belgium, in a very full crop year, would be 4,250,000 kilogrammes.

5990. Mr. *Brand*] How many cwts. is that?—There are 2 lbs. 3 oz. in the kilogramme. I have worked it out myself, and I make it (subject to correction) about 42,000 *l.* English old duty.

5991. *Chairman.*] How much would that be in cwts?—About double that quantity in cwts. That is in full crop years, when each pole would produce half a kilogramme.

5992. Has the growth increased of late years?—It has for the last four years.

5993. To what do you attribute the increase?—To the higher prices obtained there by the grower.

5994. Are those higher prices obtained in consequence of a greater consumption of hops in the country, or an increase of the export trade?—An increase in the export trade mainly.

5995. To this country or to other countries?—Mainly to this country.

5996. Mr. *Brand.*] Have you any account of the export of Belgian hops to this country for any series of years?—There is no duty on them when they are exported; therefore the quantity of exports is again a matter of estimate. I have my opinion as to what quantity is exported in various years, but it is founded upon no official documents; there are none abroad. We have the imports into this country, but they are in the gross.

5997. *Chairman.*] Can you tell us what imports of Belgian hops into this country there have been during the last five years?—You have all the information direct that can be depended upon. There are no returns; but the estimate is, that in the years 1853 and 1854 more than three-fourths of the Belgian hops were exported, and were exported to England.

5998. Can you give the Committee any information with respect to the prices of Belgian hops?—I can, as far back as 1840.

5999. Have you a table of the prices?—Yes, I have, from 1840 to 1856 inclusive.

6000. Mr. *W. Martin.*] Are those the prices upon the spot in Belgium?—They are the prices upon the spot in Belgium obtained by the growers, and not covering any loss of weight, in management, or picking, or commission for buying, or any charges.

6001. *Chairman.*] How do they cure their hops there?—The growers themselves never cure them at all; the merchant who buys them from the grower purchases them in small quantities at a time, and dries them himself.

6002. Are those prices that you have given us as the prices upon the spot, the prices given by the merchants for the hops in the raw state, before they are oasted at all?—Precisely so.

6003. Mr. *B. Hope.*] They are picked, but not oasted?—Picked, but not oasted. I have the prices in October and the March following; there is a little difference of course; the bulk of the growth would be sold at the October prices.

6004. Mr. *W. Martin.*] Would not the prices of March give us the prices of the hops after they have been oasted?—No; if they keep them for a year they never oast them till after they are bought by the merchant.

6005. Mr. *B. Hope.*] Do they deteriorate under the circumstances?—Not in ordinary seasons; when they are picked wet they are apt to do so; but when they are picked in ordinary circumstances they do not.

6006. They

6006. They are simply picked and stocked?—They are simply picked, and laid as soon as possible in open airy floors.

6007. *Chairman.*] At what season of the year do English merchants buy Belgian hops?—The hops that have been bought by English merchants have been bought at the October prices.

6008. Mr. *J. Locke.*] Does this table, which you hold in your hand, contain the price of the hops when picked?—This is the price given in the market to the grower, and does not include the cost of commission, packing, drying, loss of weight in drying, or from any other cause; that is to say, the men bring the hops into the open market; if they are bought they are taken away directly, and if they are not sold they are taken back to the floor.

6009. Will you hand that statement in to the Committee?—

[*The same was handed in, and is as follows*:]

BELGIAN HOPS.

Year of Growth.	Price in October.		Price in March following.	
	s.	*d.*	*s.*	*d.*
1840	80	–	80	–
1841	56	–	68	–
1842	72	–	56	–
1843	32	–	35	–
1844	52	–	60	–
1845	48	–	80	–
1846	40	–	32	–
1847	28	–	24	–
1848	24	–	24	–
1849	40	–	48	–
1850	28	–	32	–
1851	112	–	120	–
1852	36	–	40	–
1853	104	–	104	–
1854	240	–	280	–
1855	44	–	40	–
1846	36	–	40	–

6009*. Will you give to the Committee the average price of Belgian hops during the 17 years, distinguishing October from March, and also the average price, distinguished in the same manner for the eight years from 1847 to 1854 inclusive?—The average price for the 17 years 1840 to 1856 inclusive, is 65 *s.* 8 *d.* per cwt.; and the average price for the 8 years 1847 to 1854 inclusive, is 80 *s.* 3 *d.* per cwt.

6010. Are those prices the prices of all the Belgian hops?—No; that is the price of the bulk of the Belgian hops, about one-third would be sold at varying prices, from 20 to 25 per cent. more.

6011. About one-third of the crop consists of a superior class of hop?—Yes.

6012. Mr. *W. Martin.*] Is that the Poperinghe hop?—Yes.

6013. Mr. *J. Locke.*] Is that which you have given the average price of all the Belgian hops?—The prices I have given are the average prices of 3½ millions of kilogrammes, out of 4,200,000.

6014. The remainder you have not taken into account?—I have not given the prices of those at all.

6015. *Chairman.*] Would they range from 10 to 20 per cent. higher?—I think, more than that.

6016. What class of hops are they that are imported generally into this country, the higher class of hops or the cheaper?—From Belgium we have had both; for instance, in the year 1854, when the largest importation took place, we had more than three-fourths of the best, I think we had the whole of them, and three-fourths of the remainder.

6017. You told us with respect to the export of Belgian hops, that you could only give an estimate of the amount exported, there being no Government statistics?—Yes.

Mr. G. G. Richardson.

20 July 1857.

6018. Has the export increased of late years?—There have been no imports into England since 1854; there was no export from Belgium of the growth of 1855 at all, and of this last growth of 1856 the estimated export is only 110,000 kilogrammes out of the whole produce.

6019. Was not the year 1855 the year when the price of the hops of Belgium was rather under 44 *s.* in October, and 40 *s.* in the March following?—Yes.

6020. Would not that be a year of a large crop?—That was a year of a large crop.

6021. Are not years of large crops generally years when there are exports?—Not if no one wants to buy them.

6022. It would depend upon what the crop in other countries was?—Precisely so.

6023. Mr. *B. Hope.*] Are the crops in Belgium very variable?—No, not as variable as ours.

6024. *Chairman.*] Do not the prices vary as much as ours?—Yes.

6025. Mr. *B. Hope.*] Have the prices ranged from 24 *s.* to 14 *l.*?—Yes, being affected by the English demand.

6026. *Chairman.*] Do you think that those great variations in price are to be attributed to the English market?—Only these late variations.

6027. But the nature of the hop is not so uncertain as it is in England?—I think not.

6028. What class of English hops can you compare with the Poperinghe hops?—I do not know that you could clearly tell; those that were brought over in 1854 were used for the best purposes, but whether they were equally good with the others for the best purposes, I am not competent to tell you. They were bought to be used where the best hops usually are used.

6029. What class of brewers use those hops?—They were the high class brewers.

6030. Mr. *B. Hope.*] Do you apprehend that the expenses of cultivation there are as great as with us?—The expenses of cultivation are not easy to obtain, because they do not pay it in money. The cultivation is so much in the hands of families they do not give men wages week by week for labour.

6031. Each man cultivates a little patch?—Each man cultivates a little patch.

6032. Do you know what the rate of labour there is per day?—No, I do not.

6033. *Chairman.*] How much ought we to add to these prices for the expenses of drying and packing, and carriage in bringing them to London?—To bring them into the Thames in the state in which we like to have them, costs 10 *s.* a cwt., that includes the canvas, the carriage, the drying, and a little loss of weight, and the freight.

6034. Mr. *Brand.*] Is there any export duty in Belgium?—No.

6035. Mr. *B. Hope.*] Does that estimate include the cloth?—It does.

6036. *Chairman.*] How much is the freight?—From 2 *s.* to 3 *s.* per cwt., according to circumstances.

6037. You spoke of a loss of weight; what may that amount to?—In the Belgian hops, it amounts to little more than is covered by the customary tare which we get from the growers. I do not reckon that comes to much on the Belgian hops.

6038. Is that covered by the 10 *s.* a cwt.?—That is what I make my calculation. The loss of weight is very small in the management; in the Bavarian hops the loss is much more serious, but the loss of weight in Belgian hops is small, and it is fully covered by the customary tare; it is not tare, in fact, because the hops are bought without the pockets; it is a tret.

6039. *Chairman.*] Do Belgian hops deteriorate more or less than English hops by keeping?—As far as my experience goes, they deteriorate less than English hops.

6040. Are you speaking of the Belgian hops as brought to England, or the Belgian hops as kept in Belgium?—Of the Belgian hops as packed for this market and brought to England.

6041. Are not the hops for exportation very tightly and closely packed?—Yes, they pack them in Belgium very tight; but they obey our orders as to that.

6042. Does

6042. Does not that tight packing injure the keeping qualities of the hop?—We thought it did in the first instance, a few years ago, and we checked the extreme pressure, and modified it a little, but still they are very tight; they are tighter packed than English hops.

6043. In spite of that, your experience is, that they do not deteriorate much?—Either in spite or in consequence of that.

6044. Do you think the tightness may be an advantage?—The hops certainly make better yearlings than English hops do.

6045. What is their practice with reference to the mode of curing?—In Belgium they do not cure by a very quick draught through; in fact, without a draught at all, or very little draught.

6046. Do they dry less rapidly than our hops, and with a less amount of draught?—They do, but to that you must add probably some evaporation which takes place from the time they are packed till they are in the hands of the merchant.

6047. Are they subjected to a less degree of heat?—Yes, much less.

6048. Do you think that is a benefit to the hops?—I do; I think the extreme heat is a disadvantage.

6049. Do you think the English hops are injured by being subject to an extreme heat?—Yes, I do; and it has been my opinion for years.

6050. Mr. *W. Martin.*] Do you think that a large supply of moderately heated air is what they require?—I am not a grower; but I am speaking of the result as found in the hops.

6051. *Chairman.*] How much would you say Belgian hops deteriorate in value in a year according to the supply?—I think a brewer would answer that question better than I could; I am not competent to answer that.

6052. Mr. *J. Locke.*] What mode have the Belgians of packing their hops?—By means of hydraulic pressure, I think.

6053. Not by treading?—I believe not at all.

6054. *Chairman.*] What English hops have you dealt in?—Anything that comes uppermost; all sorts of hops.

6055. Do you buy hops from all parts of England?—No; I very seldom have either Worcestershire or Farnham hops through my hands; I buy all others.

6056. Mr. *Brand.*] Can you inform the Committee the number of acres of hops grown in Belgium?—I can by calculation; for instance, if they expect to grow 4,250,000 kilometres in a full crop year, and they get half a kilo. per pole, and we know how many poles there are per acre, we can come to the number of acres under cultivation.

6057. *Chairman.*] How many poles have they per acre?—The poles in Belgium in the open country are placed at a distance of a metre and a half; that is, 4 feet 11 inches apart in the open country; and near buildings, where there is less free air, they are placed at two metres apart; that is, 6½ feet, or six feet seven.

6058. Mr. *Brand.*] Can you give us the height of the poles?—From six to seven metres.

6059. You say that 4,250,000 kilometres is a full crop in Belgium; can you inform the Committee what quantity must be grown per acre to produce a full crop?—Yes; they must produce half a kilometre per pole, which is 1 lb. and 1½ oz.

6060. Reducing that to cwts. an acre, how much is it?—At five feet apart, there would be 1,760 poles to an acre; but they are not all five feet apart, some near buildings being as much as 6½ feet apart; so that it is a matter of estimate how many there are of the one and how many of the other. At five feet there are 1,760 poles to an acre, and at 6½ there are 1,024 to an acre; therefore, assuming that there are 1,500 poles to an acre, which I think is very likely about right, there being more in the open country than near buildings, there would be about 5,660 English acres of land under hop cultivation in Belgium. At five feet apart the produce would be 17 cwt. per acre in a full crop year, but at 6½ feet it would be 10 cwt. per acre; and there are both of these measurements in Belgium, so that it would vary from 10 to 17 cwt.

6061. Is the Committee to understand that in your opinion 5,660 acres is about the area under hop cultivation in Belgium?—Yes; including a little portion of France, from which the hops go to the Belgium market.

Mr. *G. G. Richardson.*

20 July 1857.

6062. Is there much land in Belgium capable of hop cultivation?—Yes; subject to competition with other produce.

6063. Mr. *B. Hope.*] Are those the hop gardens you pass through on the railway between Paris and the Netherlands?—Yes; the hops go to the Belgium market.

6064. *Chairman.*] Is the land in Belgium mostly the property of small owners who cultivate a small patch?—Yes.

6065. There is no hop duty in Belgium?—None whatever.

6066. What sort of soil do they generally choose in Belgium for the cultivation of hops?—The whole of the country where the hops are grown is not a dead level like the grass land, nor is it a mountainous country; it is slightly elevated.

6067. In what part of Belgium are most hops grown?—About Alost, south of Ghent.

6068. Do you know what the subsoil is?—No, I do not.

6069. Where are the Poperinghe hops grown?—They are grown nearer the French frontier.

6070. Are they also grown by small owners?—They are.

6071. Are they grown at a greater cost of cultivation?—I do not know that they are.

6072. Do you know whether they manure heavily to raise their crops?—They manure usually twice a year, in the month of March, with animal manure, either cow dung or horse dung; and in the month of May, when the hops are not going on well, they give them a dressing of that stuff called poudret.

6073. I think you told us that it was difficult to calculate the expenses of cultivation per acre there?—It is impossible, I should think.

6074. Could not you tell what, upon the average of 10 years, a Belgian hop grower would consider a remunerative price?—I can only tell that from a calculation of the price he has obtained.

6075. What would pay him upon an average of 10 years?—I cannot tell that; I know they have paid him so well the last four or five years, that he has largely increased the growth; I do not mean to include the last two years.

6076. Mr. *W. Martin.*] That includes 130 *s.* and 104 *s.*, and 12 *l.* and 14 *l.*?—Yes; the 12 *l.* and 14 *l.* lent a considerable impulse to the cultivation.

6077. *Chairman.*] Where are the hops dried?—There is not an oast-house in the country, except at Alost, and they are brought to town in the carts loose; therefore the drying them is the business of the merchant who buys them.

6078. Mr. *B. Hope.*] Does the oast-house belong to the merchant, or other persons whose business it is to dry the hops?—Yes.

6079. Supposing the hop grower does not find a ready sale for his hops, where does he keep them?—He keeps them in a little barn, or a floor in the loft of the house, or anything of that kind.

6080. Are the hops grown in Belgium of a different kind from any grown in England?—All those that are grown in the two districts of Belgium that I have mentioned are perfectly alike; all that are grown in the same districts; all the hops that are about Alost are alike, and all that are about Poperinghe are also alike.

6081. Are there none like them grown in England?—I do not know that there are; hops alter so much by soil, that I do not know.

6082. Do they ever in Belgium grow hops interspersed with other crops?—I think not; I have never seen it.

6083. Are you aware of the custom of Belgium of eating the hop fruit?—I have heard of it.

6084. When the produce of hops in Belgium has been increased, has it been by extending the acreage or growing more to the acre?—By extending the acreage.

6085. Are not the owners of small properties at a great expense in cultivating their land?—I do not know; they never lay out any money upon it in labour.

6086. Mr. *J. Locke.*] Supposing the Customs duty were taken off hops, do you think it would tend to more capital being employed on hops in Belgium?—If the price of Belgian hops were to be higher than it has been, there would be more grown.

6087. Would it be worth while for English people to embark capital there?—I should not advise it. They could not hire labour; but still I should hardly like

like to give an opinion upon that point. That would be the main difficulty. They could get plenty of land and plenty of poles.

6088. The difficulty would be in getting labour?—I think so.

6089. Mr. *B. Hope.*] Where do they get their poles?—I do not know where they get their poles.

6090. What poles are they?—They are larch, I think, chiefly.

6091. *Chairman.*] Have they any difficulty in getting them?—None whatever; they cost from 50 to 60 francs per 100.

6092. What length are they?—Six or seven metres; about 20 feet.

6093. Mr. *Bass.*] Are not the poles nearly double the price that they are in England?—Yes.

6094. Do you know the value of land in Belgium?—Yes, it would be about 100 francs a hectare, which is about 2 ½ acres; but almost the whole of the hop land is the person's property on which they grow hops; they do not pay any rent at all; it is their own freehold property.

6095. That is 40 francs an acre?—Yes.

6096. Is not that above the price paid in the county of Sussex?—Yes.

6097. Are there any taxes?—No, they have no taxes except a land tax.

6098. Mr. *W. Martin.*] What is the amount of that?—Ten per cent. on the rent.

6099. *Chairman.*] That does not apply exclusively to hops?—No, it is a charge for all land.

6100. Is there any extraordinary charge of any kind upon hops?—Not the slightest.

6101. Mr. *Bass.*] Is there any poor rate?—None whatever.

6102. Is there no other rate except the land tax?—Not that I am aware of.

6103. That is 10 per cent. upon the annual value?—It is about 10 per cent. upon the annual value; that is to say, if a man was to pay 100 francs rent, he pays 10 francs for land tax.

6104. Has there been any large amount of importation of Belgian hops, except in the year of extreme scarcity in England?—It has been very rare.

6105. Do you think that if the duty were removed there would be a regular importation of Belgian hops?—It depends upon whether the removal of the duty would lower or raise the price; if it raised the price here, they would grow more hops.

6106. If the removal of the duty were to reduce the price, would they be able to send Belgian hops to this country?—They have brought them in at the prices of the last few years.

6107. You did not import any last year?—None.

6108. And none the last half of the year before?—No; I do not think that any Belgian hops have come to this country either of the growth of 1855 or 1856.

6109. Mr. *B. Hope.*] Did not you say 110,000 kilogrammes were exported?—Yes; but not to England.

6110. *Chairman.*] You said that you sold the Poperinghe hops in 1854 to the houses of the highest class, whom did you sell the others to?—To the brewers all over the country.

6111. Mr. *Bass.*] Without either a great advance or any considerable reduction in the price of hops, do you apprehend that with an equal duty we might look to a considerable trade between Belgium and this country?—It is impossible that I can say; if we get a succession of high prices, the cultivation of hops in Belgium might increase 50 per cent. from what it is at present.

6112. If we get a succession of low prices would it increase?—It would not.

6113. Supposing we took off the 2 *l.* 5 *s.* duty, what would be the effect?—I do not know what the effect would be.

6114. Mr. *W. Martin.*] If you took off the 2 *l.* 5 *s.* duty, is not it probable that there would be an extensive reduction in the prices?—If the prices are as low as they are we could not have imported them, if there had been no Excise, as well as no import duty.

6115. Mr. *Bass.*] Are you aware of any conditions with regard to Belgian hops that would enable them to undersell this market?—No, I am not aware of any; if you put down the prices of the last two years, and add 10 *s.* to those prices, I find it will come to more money than Sussex hops would cost, taking off the 17 *s.* duty.

Mr. G. G. Richardson.

20 July 1857.

6116. Mr. *Brand.*] What rate of prices in this country would induce the Belgians to increase their growth 50 per cent.?—I do not think I could answer that question; it is not a matter of fact; it is mere conjecture.

6117. *Chairman.*] Do you find that the hops suffer at all from the sea voyage?—Not in the least, unless they ship water.

6118. Generally they do not?—No.

6119. Are they not closely pressed and packed into strong heavy bags?—The bag is no heavier than our pocket.

6120. Do the Custom-house make any allowance for the tare?—They do.

6121. Mr. *Bass.*] How much?—Seven pounds usually, but we sometimes get a little more, and sometimes we do not get so much.

6122. *Chairman.*] Is that about a fair allowance?—It is about a fair allowance; it is 7 lbs. upon 2 ¼ cwt.

6123. Mr. *Bass.*] It is rather under three per cent.?—It is rather under three per cent.

6124. Mr. *B. Hope.*] Do not you deposit your hops in the bonded warehouses?—Yes.

6125. How much do you pay for that?—Twopence a bale per week.

6126. How much is a bale?—They vary; it is sometimes 2 ¼ cwt., but we pay as much as if it was 2 ½; that does not include insurance.

6127. *Chairman.*] Have you anything further to state, with reference to Belgium?—The labour is generally performed entirely by the family; there is no money paid to any workmen upon the places, except for picking them, and they are generally picked by women.

6128. Mr. *J. Locke.*] Are there not workmen in Belgium?—Yes.

6129. Do you know what the daily price of a workman is?—I have not the least idea.

6130. Mr. *Brand.*] Can you state what the price of picking is?—No, I cannot.

6131. Mr. *J. Locke.*] Is Belgium like France, in having small holdings of land?—Yes.

6132. How much are the holdings?—From 400 to 500 poles.

6133. How many acres would that be?—We reckon upon the average about 1,500 poles to an acre.

6134. Mr. *B. Hope.*] Does the "Code Napoleon" exist there, by which the properties are subdivided?—Yes.

6135. Must not that be a perpetual obstacle to anything like enterprise in increasing the breadth of hops?—Yes; there are instances of 1,000 poles being held by one person.

6136. Mr. *J. Locke.*] What proportion would they keep under hop cultivation out of a holding?—That is, the amount of hops in cultivation in one individual person's hands; I say they are usually from 400 to 500 poles.

6137. Then they would have land besides that?—Yes.

6138. What would be the holding altogether?—I cannot tell you; it varies in different parishes.

6139. Would it be above 20 acres?—I do not know; it varies in different parishes. I know one hill in Belgium which is covered with hops; they do not grow anything else.

6140. Mr. *Brand.*] Is the cultivation generally performed by hand-labour?—Yes.

6141. Have they not less blight than with us?—Yes; they are subject to disasters by storms, and which we are not so liable to; I think they are less liable to fly blight, or, at all events, they get through it better than we do. They are subject to hail storms.

6142. Mr. *Bass.*] Do you apprehend that in Belgium they make a selection of the most suitable ground for hops, as we do in this country?—Yes they do.

6143. Therefore, if they increased the cultivation, would it not be by growing hops upon land which has not been considered so favourable to the growth?—They might displace other produce which occupies ground equally favourable for hops, which pays better; but if they could get a better price in England they would plant more hops; but I do not estimate the capability under any circumstances to be more than 50 per cent. of their present produce.

6144. Is there any greater relative opportunity than there is in England for that increase of cultivation?—I am not aware of any.

6145. I suppose

6145. I suppose you are so well acquainted with the hop-growing districts as to know there is hardly any limit to the cultivation of hops in Kent and Sussex?—If the price was satisfactory there would be more grown.

6146. If prices were to rise, would it not be quite as likely that English cultivation should increase as foreign cultivation?—If it was worth while for the two sets of people to set to work to grow hops more than they do now, the English could have the growth to a greater extent and quicker than in Belgium.

6147. *Chairman.*] Could they grow as cheap?—I do not know tne prices of any years, except the last five years, that have been affected by the prices in England.

6148. Are not the prices that you have given lower than those in England?—I have not compared them with the others, except the last two years.

6149. Mr. *Bass.*] In the last two years has it not been in such a state that we could not have imported the Belgian hop at an equal duty?—My opinion is that we could not.

6150. Mr. *Beresford Hope.*] Have you ever seen English hops in Belgium?—No.

6151. Is there never a short crop in Belgium?—I have never known it.

6152. Mr. *Bass.*] Have you ever shipped hops for Belgium or Germany?—I have for Germany, but for Belgium never.

6153. Mr. *B. Hope.*] Do Belgian hops go much into France?—Yes, they do.

6154. Do you think that under any change of system the English hops could go to France or Belgium?—No, I think not.

6155. Mr. *Bass.*] Could they compete with the French hop?—No.

6156. Is not that because Belgian hops are better?—I think they prefer them.

6157. Are you aware that a competition took place in France?—I am; I have myself heard of it.

6158. Are you aware that the Belgian hops were preferred on that occasion?—I have heard of it. I am not aware, but I think, as a matter of choice, the French would prefer Belgian hops to English.

6159. Mr. *B. Hope.*] Are there any French hops besides those you have mentioned as going to the Belgian market?—Yes.

6160. Mr. *Bass.*] Are not there some hops in Normandy?—But a few. There are a few in Loraine.

6161. *Chairman.*] Have you ever exported hops to our colonies?—Yes, I have.

6162. Have you ever sent any Belgian hops there?—Yes, I have.

6163. Did they supply the foreign market?—Yes; but they will not fetch the same price as the English.

6164. Mr. *Bass.*] Is that by reason of their quality, or from some predilection in favour of English hops?—It is probably from previous habit.

6165. Mr. *J. Locke.*] You have stated that the planters keep the hops themselves; do they generally stow them away in the house?—They do usually, or in the barn.

6166. Are they in the habit of putting them in their beds?—I do not know. I never saw them. I cannot say that they do not.

6167. *Chairman.*] With respect to Germany, the principal portion of the hops which are imported from Germany are Bavarian hops, are they not?—The principal portion of hops imported from Germany are Bavarian hops.

6168. Could you give the Committee a table of prices of Bavarian hops for the last 17 years, as you have done for Belgian hops?—I could do it for the ordinary Bavarian hops; of course some would fetch more money in many cases, and some less.

6169. Will you furnish them?—This is the same price obtained by the grower without any expense for drying or packing, or loss of weight, and the prices are under the same condition as the others.

6170. Are they prices for the whole year?—This is the price taken from the average of the whole year.

6171. Are there any Government returns of hops in Bavaria?—None; it is merely matter of estimate; but the prices I am going to give are the prices at which almost the whole of the crop is sold.

6172. Will you hand that statement in?—

[*The same was delivered in, and read as follows:*]

Mr. *G. G. Richardson.*

20 July 1857.

BAVARIAN HOPS.

Year of Growth.	Average Price of Year.	Year of Growth.	Average Price of Year.
	s.		*s.*
1840 - - - -	95 per cwt.	1849 - - - -	116 per cwt.
1841 - - - -	95 „	1850 - - - -	45 „
1842 - - - -	170 „	1851 - - - -	203 „
1843 - - - -	109 „	1852 - - - -	67 „
1844 - - - -	150 „	1853 - - - -	120 „
1845 - - - -	75 „	1854 - - - -	247 „
1846 - - - -	63 „	1855 - - - -	45 „
1847 - - - -	23 „	1856 - - - -	67 „
1848 - - - -	56 „		

6173. Is this the price of the whole Bavarian crop, or have you as in the case of the Belgian, given the price of the bulk and not of the higher qualities?—These are the prices of the largest quantity of Bavarians.

6174. Mr. *Bass.*] Of the best quality?—No, of medium quality.

6175. *Chairman.*] What portion of the crop is of a superior quality?—More than one-third is superior to this.

6176. And how much per cent. more are they worth?—At the same period when the quality I am giving was at 70 *s.*, the higher quality was over 80 *s.*, that would be a difference of not quite 20 per cent.

6177. Are not all those the prices which the grower gets when the hops are picked, and previous to drying and packing?—Yes.

6178. Mr. *Bass.*] If you add 20 per cent. to 67 *s.*, which is the price you have given for 1856, you get 73 *s.*; could you have bought the first quality of Bavarian hops last October at that price in Bavaria?—The price in October was as high as 80 florins, the best hops in the highest period; that is 120 *s.* to grower. The florin is 1 *s.* 8 *d.*

6179. Had you any inquiry for the fine quality of Bavarian hops last October?—No.

6180. Are you aware of any demand for Bavarian hops, from this side of the water in October last, which could not be satisfied on account of the high prices?—If I could have sold hops at that time up to October and November at the same price as in March, I am certain I could have sold some.

6181. At what price could you have delivered hops, in January and March, of the best quality?—January was the first time at which it was possible to do any business at all.

6182. At what price could you have delivered hops in January?—At nine guineas per cwt. duty paid.

6183. If you could have delivered hops at within 20 per cent. of the prices of our best hops in this country, are you aware whether you could have done a considerable trade at the beginning of that year?—I presume I could have sold Bavarian hops at upwards of 22 per cent. more than I asked for the best English.

6184. Can you tell the Committee why you could get 20 per cent. more for Bavarian hops?—The brewers chose to give me that; they liked them better.

6185. According to your judgment what was the difference?—I do not myself see it. I should not myself have advised them to have given so much; I do not think that they were worth so much; for the price at which the best English hops were sold was five guineas, whereas the foreign hops were 6 *l.* 12 *s.* I myself did not see the great difference between them that the brewers did.

6186. According to your judgment would they be worth 6 *l.*?—No, I do not think they would.

6187. Do

6187. Do you speak as a hop merchant?—After they had been bought by me as a merchant, and the brewer had asked my advice whether he should buy the best English hops at 5 *l.* or the best Bavarians at 6 *l.*, or at 5 *l.* 12 *s.*, I should have advised him to buy the English hops.

6188. Have you sold very considerably at 6 *l.* 12 *s.* up to almost the present time?—Not considerably.

6189. Have you sold thousands of cwts.?—No, it would not amount to thousands of cwts.; but to more than 1,000.

6190. *Chairman.*] Will you give the Committee the average of the price of Bavarian hops for the last 17 years, and also of the eight years from 1847 to 1854 inclusive, as in the case of the Belgian hops?—The average price for the 17 years, 1840 to 1856 inclusive, is 102 *s.* 8 *d.* per cwt., and the average price for the 8 years, 1847 to 1854 inclusive, is 109 *s.* 7 *d.* per cwt.

6191. Could you tell us what are the subsequent expenses of drying and packing, and carriage to this country?—To the prices I have given you already, you would have to add about 15 per cent. for the loss of weight and commission for buying; they do not buy in Bavaria as they do in Belgium; in Belgium the buyer has a commission per cwt.; in Bavaria it is a per centage upon the cost; you would have to pay about 15 per cent. for loss of weight, commission, manufacture, preparing, superintendence, and all those charges; that includes the loss of weight, and all expenses except carriage.

6192. What is the freight from Bavaria to this country?—At most times we calculate at 5 *s.* 6 *d.* per cwt, but in winter, when we have frequently done most business, the northern ports being frozen up, we have to bring them by railway as far as Ostend, or as far as Havre; sometimes it costs us 8 *s.*, 10 *s.*, and even once we paid 14 *s.* a cwt. to get them over.

6193. Is there any duty charged upon hops in Bavaria?—There is no duty levied on hops produced in Bavaria by the Bavarian government; there is a duty upon hops imported into Bavaria.

6194. Is there any tithe upon hops in Bavaria?—None that I am aware of.

6195. Is there any peculiar charge upon hops?—None whatever.

6196. Mr. *W. Martin.*] Are hops grown in small patches as in Belgium?—They are small holdings; very few growers will have so much as 80 quintals; a quintal is about 100 lbs.; that would be 8,000 lbs., about 70 odd cwt.; not many have so much as 80 quintals, and not many have from 20 to 30; there are a great many who have 10, and a few that hold 5 and 4; you may take 8 cwts. as about the average produce.

6197. *Chairman.*] How many acres of ground would grow 8 cwt.?—That is a matter of calculation in the same way as in the case of Belgium.

6198. Could you give us the produce per acre?—As far as I can estimate it in the greater part of Bavaria, the poles are four feet apart, I think that would be about 2,600 to the acre; with a very full crop in Bavaria they would get half a pound to a poll; that would give as much as 11½ cwt. per acre.

6199. Mr. *Bass.*] Do you undertake to give four feet as the average distance at which the poles are placed?—I must give my statement for the two different distances of the poles, because in one district they are four feet apart, and they are wider apart in another district.

6200. Mr. *Brand.*] What are the height of the poles that are four feet apart?—I have not the height; I can only tell you that from my own impression when I was there. In Bavaria the poles are longer than in Belgium.

6201. Mr. *Bass.*] Are they twice as long?—No, I think not.

6202. *Chairman.*] Do you know what the cost of the poles is?—No, I do not.

6203. Mr. *Bass.*] Would you be surprised to be told that I have measured them, and found them 47 feet high?—No, because though I have not measured them, I know they are very high.

6204. *Chairman.*] You have given the result of the four feet apart cultivation; what is the other system?—When they are four feet apart they are in squares; in other districts they are six feet apart, and in the intervals there is a pole in the middle, three feet off from the others.

6205. Mr. *Bass.*] What district is that in?—In Hersbruck and Altdorf they are six feet apart.

 6206. Have

Mr. *G. G. Richardson.*

20 July 1857.

6206. Have you seen them so?—I have seen them so; but I did not put down the memorandum at the time. I had an exact drawing, sent over this year, to correct my own impression that I got there.

6207. How much is there per acre upon that system of cultivation?—At four feet apart you would have 2,600 poles to an acre; and in an extremely full crop of hops in Bavaria a pole would have its full weight, which is half a pound to a pole, and you would get as much as 12 cwt. to an acre; but in 1856 it was estimated that the growth of Bavaria was 66,000 quintals, which would give 7½ cwt. to an acre.

6208. With the six feet apart cultivation, how much is the produce?—I have not made that calculation.

6209. Will it be more or less than upon the other system?—There would be rather fewer poles per acre; I think their foot is a little smaller than the English foot; 1,000 Bavarian feet are equal to 957 English feet.

6210. Mr. *Bass.*] Do you mean to convey to the Committee the impression that in Bavaria they grow 9 cwt. per acre?—They might grow as much as 100,000 quintals in Bavaria Proper, and their growth last year was 66,000 quintals.

6211. That is a little more than half what they grew last year?—That is a little more than half what they might grow.

6212. Mr. *Brand.*] How much is that per acre?—About 7 cwt. per acre.

6213. Mr. *Bass.*] How many acres do you calculate that there are under the hop calculation in Bavaria?—We must work that out in the same way as we worked out the other; 66,000 quintals, at the rate of 7 cwt., would give about 9,000 acres.

6214. Have you no other measurement of the acreage under hop cultivation than the produce?—No other.

6215. Have you no knowledge of the acreage?—No, there are no statistics with regard to it.

6216. If the Bavarian hop merchants send statistics over to this country, in which they tell you that they have 25,000 acres under hop cultivation in Bavaria, which upon the average of the last seven years have produced 2¾ cwt. per acre, would you put no faith in that?—I should consider that they had made an estimate, and very likely a correct one.

6217. You do not know how many acres are cultivated in Bavaria except by calculation of the produce grown?—No.

6218. Mr. *John Locke.* How much do you make it according to your calculation?—If there are 66,000 quintals, which is about 66,000 cwts., that would give, in Bavaria Proper, about 9,000 acres. If, instead of a produce of 7 cwt. per acre, you suppose a produce of only 2¼, there would be three times the amount of acres. If I put the produce too high, I have put the acreage too small.

6219. *Chairman.* Is the land upon which hops are cultivated in Bavaria, the property of small owners as it is in Belgium?—Not to the same extent, I think.

6220. Is any great proportion of it so held?—Yes, I think a good deal of it is so held.

6221. Mr. *Brand.*] Is it all cultivated by manual labour?—Yes.

6222. *Chairman.*] Can you speak as to the expense of cultivation?—No; from the same reason as in Belgium, because it is done by the families of the owners to a great extent.

6223. Can you tell the Committee what upon the average of ten years would be considered a remunerative price by the Bavarian hop grower?—If the Bavarian grower of this class of hop that we are speaking of, which includes the bulk of Bavarian produce, excluding the best, were to get 55 English shillings per cwt., he would increase his growth, and in fact he has increased it.

6224. That would be a good paying price?—They would increase their growth upon the strength of that.

6225. That is the price to be obtained by the growers, excluding the drying?—Yes.

6226. Are the hops sent to the towns to be dried?—Yes.

6227. Mr. *Bass.*] How are the hops collected from the different plantations?—They are brought in little waggons or carts.

6228. Or

6228. Or in wheelbarrows?—I am not aware that they are brought in wheelbarrows.

6229. Have you never seen them brought in wheelbarrows?—No; but I was not there at the time of picking.

6230. Mr. *Brand.*] When you state that 55 *s.* would be a remunerative price to the Bavarian grower, do you base that upon the assumption that there is a full crop year?—Yes; I assume that it is the sort of crop that they would expect. I do not assume that they get half a pound a pole, because they never expect to get that; that is the full estimate of what is possible.

6231. Mr. *Bass.*] That is supposing that every pole did all that every pole could do?—Yes.

6232. *Chairman.*] Do I rightly understand you to say that 55 *s.* a cwt. would be a remunerative price upon the average crop of the last 10 years?—Yes.

6233. I see that the prices vary very much from year to year; is that owing to the uncertainty of the crop?—I have no experience to tell me the causes of greater prices in certain years.

6234. Do you know whether the hops in Bavaria are liable to blight, or to variations in the amount of their produce as the English hops are?—I think that in Bavaria they are not so liable to the blight, which is the greatest enemy to the hops; they may have it as well as ourselves. But they are much more likely to have hot weather afterwards, which will cause the hops to get through it.

6235. Do you know whether the amount of their produce per acre varies as much from year to year as it does in England?—Yes; I think it does.

6236. Mr. *Bass.*] Is it as capricious a crop in Bavaria as in England?—I think upon the whole that it would be so.

6237. *Chairman.*] Do you know what proportion of the produce of Bavaria is annually exported?—No, I do not think I can tell you that; but it is a very large one; the Bavarian hops are exported from Bavaria itself.

6238. Where do they export them to besides England?—Besides England, they export them to France, as there is a large consumption of Bavarian hops in France and Italy; and moreover the Viennese brewers buy a great deal of Bavarian hops.

6239. Mr. *Bass.*] Is that on account of the excellency of the hops?—I do not know.

6240. *Chairman.*] Is not there a large consumption in the country itself?—Yes; very large indeed.

6241. Do they brew their own Bavarian beer with the best quality of Bavarian hops?—I think the best quality is usually exported.

6242. Mr. *Bass.*] Have you never heard it said that the brewers in the country are supplied with the best hops before the exportation is commenced?—No.

6243. Was not that the case last year?—I do not know, because I only deal with the crop for our market.

6244. How was it that you could not get supplied in October, if you did get supplies in March?—Because there were people in the market who would give more money than English brewers.

6245. Do not you know who those people were?—No; but I believe they were the Viennese brewers.

6246. Have you never heard that the Bavarian brewers pressed in for the best hops?—No.

6247. Do you know any Bavarian brewers?—Not personally.

6248. Do you know much of their trade?—No.

6249. Mr. *John Locke.*] Have you drunk any of the Bavarian beer?—Yes.

6250. Mr. *Bass.*] Is not it of excellent quality?—It is very good in Munich.

6251. *Chairman.*] Are Bavarian hops exported to the colonies?—Yes.

6252. Have you ever exported any?—Yes.

6253. Mr. *Brand.*] Supposing you had an order for a quantity of the best hops from a correspondent in the colonies, should you purchase English or Bavarian hops?—Unless I had an order to purchase Bavarian or Belgian hops, I should purchase English hops.

6254. *Chairman.*] How are the hops dried in Bavaria?—They are dried with a much stronger draught than in Belgium.

Mr. *G. G. Richardson.*

20 July 1857.

6255. Are they subject to as great a heat as the English hops?—If they are, it is not for so long continuance, but they have plenty of air besides, and they are probably different in that respect.

6256. *Chairman.*] Are they packed tightly, and closely?—In some instances they are, but in some they are not; our orders were not to pack tightly.

6257. You do not find that they suffer any injury from being packed so tightly?—No, they do not send them pressed so hard as the Belgians do.

6258. Are they pressed by hydraulic pressure?—They would be for the English market.

6259. Do they make better or worse yearlings than the English hops?—In my opinion they make better yearlings than the English hops.

6260. Do they make as good yearlings as the Belgian hops?—Quite as good.

6261. Mr. *Bass.*] Is there a less depreciation in the best quality of Bavarian hops when they become yearlings, than in the English hops?—Yes.

6262. *Chairman.*] Is there any export duty upon hops in Bavaria?—No.

6263. Is there any transit duty?—I do not think there is.

6264. Mr. *Bass.*] In what way do you account for the superior quality of Bavarian hops; is it from the soil and climate, or from the cultivation, or from both?—That is a matter of surmise, but my impression is that the Bavarian hops are better than the English, if they are better, because there is less grown per pole.

6265. Mr. *Brand.*] Do you admit that the Bavarian hops are better than the best English grown hops?—My opinion is that the best Bavarian hops have more power and more bitter, and have as good a flavour as the best English hops. To the Bohemian hops that remark will apply more strongly still.

6266. Mr. *Bass.*] Are they better than the Bavarians?—I do not think that Bohemian hops are better than the best Bavarians, but I think they are quite as good. I think that the Bohemians, as a lot, are better than the Bavarians as a lot, but that the best Bavarians are stouter than the best Bohemians.

6267. Have they a better flavour?—Yes, I think so; they would not be better than the best Bohemians perhaps, but quite as good.

6268. Can you get as high a price for the best Bavarians as for the best Bohemians?—I should consider that I should get a better price for the very best Bavarians than for the best Bohemians; but that the ordinary Bohemians are better than the ordinary Bavarians.

6269. Do you attribute that superiority of Bavaria and Bohemia, as compared with England, to their cultivating only upon one pole?—I think they do not force them so much.

6270. Mr. *Beach.*] Are the expenses of cultivation in Bavaria greater than in Belgium?—I cannot tell what they are.

6271. Mr. *Brand.*] Do you know the rent of the land in Bavaria upon which hops are grown?—I can only give you one instance in which a person had 1,300 poles, which were four feet apart, and those 1,300 poles, including the use of the poles, he has let at a rent of 4 *l.* a year, upon a leasehold; the tenant to keep up the poles to as good a condition as when he took them.

6272. Mr. *Bass.*] Did I rightly understand you to say that a quarter pound per pole is the usual amount of cultivation?—Yes.

6273. Would not that be 325 lbs. for half an acre?—Yes, 1,300 poles would be upon half an acre. I do not give that as a specimen of the whole country, but I know that in that instance 1,300 poles, four feet apart, were let for 4 *l.* a year.

6274. Mr. *B. Hope.*] What was the height of the poles?—They are very high, but I did not measure them.

6275. *Chairman.*] Do you know what soil they grow hops upon in Bavaria?—It is a very light soil as far as I have seen.

6276. Do you know what sort of soil it is?—No.

6277. In what part of Bavaria are the best hops grown; are they in the neighbourhood of Ratisbon?—There are very good hops grown in the neighbourhood of Ratisbon.

6278. And in the neighbourhood of Nuremberg?—And in the neighbourhood of Nuremberg also.

6279. Could you say which is the place where the best hops are grown?—The hops that fetch the highest price in the market are those that come from a place called Spalt, which is not far from Nuremberg.

6280. Mr.

6280. Mr. *Bass.*] Do they fetch a higher price than those grown in Hollenbach?—Yes.

6281. *Chairman.*] Do you know whether the cultivation of hops in Bavaria might be extended?—Yes, I should think it would in a succession of high priced years.

6282. Is there plenty of land for it?—Yes.

6283. Mr. *Brand.*] Has the cultivation of hops in Bavaria increased of late years?—Yes.

6284. Mr. *John Locke.*] Do they mark their hops in that country?—Not generally; but there are two districts, one in Bavaria, and one in Bohemia, which are celebrated for their hops; and they have a kind of community among themselves, and they take hops to the town scale, and put the town's seal upon them, in the presence of witnesses, and those hops will fetch more money than others; the seal is evidence of their having grown in the particular locality, which of course makes them valuable.

6285. Mr. *Bass.*] Is not that in fact the same thing as the practice of marking hops in England?—As far as it goes it is.

6286. *Chairman.*] Have you found, in selling Belgian or German hops in England, that the buyers have objected to there being no mark upon them?—No.

6287. Mr. *Bass.*] Have you any doubt that they would sell better if you gave an assurance that they were produced in any favourite spot, such as Spalt or Hollenbach?—I have no assurance that people would give more money for them if they were known to have been grown in those places.

6288. *Chairman.*] Do not the brewers buy by sample?—The brewers buy by sample, and I was never asked where the hops were grown.

6289. With respect to Bohemia, do you import Bohemian hops?—Yes.

6290. How do they compare in quality with the Belgian hops?—I think, as a general rule, the Bohemians are better than the Belgians.

6291. Do they command about the same price as the bulk of the Bavarian hops?—Yes, rather more.

6292. Is not the expense of bringing them to this country rather greater than the expense of bringing Bavarian hops?—No, it is rather less. The distance is greater from Bohemia to England than from Nuremberg to England, but as they come from Hamburg, the distance is shorter from Bohemia to the port of shipment.

6293. Do Bavarian hops come by way of Hamburg?—Yes; except when the Elbe is frozen up.

6294. Mr. *Bass.*] Is not the Elbe frozen up every year?—Yes; but the first hops that I had came over in January, and the Elbe was not frozen up then. I got caught once in January, but it was only for a few days, and I do not think that the Elbe was frozen up at Hamburg for more than four consecutive days last winter.

6295. *Chairman.*] To what class of brewers do you sell Bavarian hops?—I have sold to all sorts.

6296. Mr. *Bass.*] Did I understand you correctly to say that the brewers to whom you sell Bohemian hops do not inquire where they were grown?—I understood your question to be, whether the brewers who bought Bavarian hops would ask whether they were grown in Spalt or Hallerthau. I have been asked whether they were Bavarians or Bohemians, and I make good what I sell as either.

6297. Are you aware that it is the practice of the man who sells Bohemian and Bavarian hops, to say that they were grown at Spalt or the other favourite districts?—I have not done so. I have always produced a good sample and have seen that the bulk was equal to the sample. I should not have the least objection to do so, and I have occasionally told the purchasers where they came from.

6298. Is business in England done enitrely by sample, or do the buyers rely partly upon the sample and partly upon the brand?—I should think that the buyers in England rely upon the brand.

6299. Is there any reason why they should not do the same in Bavaria, if they could be sure that they had faithfully affixed the brand?—Perhaps there are two or three exceptions; but if I were to tell most of my customers that the hops were grown in Hallerthau, they would not know what it signified.

Mr. *G. G. Richardson.*

25 July 1857.

6300. Is that the case with all who buy a few?—No, I made some exceptions; but, in fact with the bulk of the Bavarian trade I do not know what advantage it would be.

6301. *Chairman.*] With respect to the hops grown in the other parts of Germany, what places are they grown in?—There is Bohemia, and there is a little in West Germany, and a good deal in North Germany; in West Germany the growth is apparently dying out.

6302. Do you import any hops from Poland?—I have had some from Poland.

6303. What sort of hops are they that come from Poland?—Very inferior.

6304. Are they worth importing?—No. I imported them in the very dear year of 1854; they cost me a very little money, and when they came here, any hops were valuable.

6305. Was not 1854 quite an exceptional year?—It was quite an exceptional year; but those hops were so poor that I would not sell them to my customers.

6306. Mr. *B. Hope.*] Is there much land under hop cultivation in Poland?—In Prussian Poland we think that the annual produce of hops is 30,000 quintals.

6307. Are they solely grown in Prussian Poland?—They are solely grown in Prussian Poland.

6308. *Chairman.*] With respect to Brunswick, is there any quantity of hops there?—In Brunswick there are some grown, about 18,000 cwt. per annum.

6039. Of what class are they?—Inferior to the others, though they look very well.

6310. Are they equal to the Belgian hops?—No.

6311. What price do they fetch?—They vary, they are lower than the Belgians; I have only imported them once.

6312. They do not pay?—No.

6313. I think you told the Committee that you bought English hops as well as foreign hops?—Yes.

6314. Do you buy them from all parts of England?—I seldom have Farnham or Worcestershire hops through my hands.

6315. You spoke of the best Bavarian hops as growing less to the acre than the English hops; do you know whether East Kent has of late years increased its produce per acre?—I expect it has from my observation, but I do not think I have statistics which will prove it.

6316. Do you consider that the quality of the East Kent hops has deteriorated of late years?—I never see any so good now as I used to see years ago.

6317. Has the deterioration taken place within the last 20 years?—No; within the last 10 years.

6318. Could you say whether it is to be attributed to the increase in the produce per acre?—I could not say that; but in my opinion, it is so.

6319. Has it taken place at the same time with that increase?—Yes.

6320. Mr. *Brand.*] Is it the opinion of the trade?—I think it is.

6321. Mr. *W. Martin.*] Do you think that the accurate knowledge which you at present acquire of the quantities of hops grown in England by means of the duty is convenient, or not convenient, to those who are employed in buying and selling hops?—It is an enormous convenience, no doubt.

6322. If you were to be asked whether, in the interest of the growers, you would prefer (the amount of revenue by the two plans being about equal) an acreage duty, or taking off the war duty, which should you think it to your interest to accept, seeing that by taking off the war duty you still would obtain the advantage of the statistics of the growth which you have now?—In my opinion there is no doubt that it would be to their interest not to pay an acreage duty, but to take off the war duty; and under any circumstances, I think, it would be well that something, at all events, should be kept on for the sake of that consideration; it is impossible to overrate the value of that knowledge.

6323. *Chairman.*] Might not you make a return of the amount of hops grown without levying a duty?—It might be done.

6324. Mr. *W. Martin.*] Do you think that it would be worth the growers' while to pay some duty in order to get that information?—I think it is very valuable

valuable to us in dealing in hops, and I think that probably without that knowledge upon the part of the grower he would be in the hands of the market.

6325. Would not he be liable to make great mistakes?—I think so; he would find that those men who looked into the thing would know more about the quantity than those who merely grew them in their own parish.

6326. *Chairman.*] Do not you think that sometimes that knowledge of the amount of the growth is an injury to the grower. If it is known that there is a large crop would it not decrease the price?—If there is a large crop it would soon be known.

6327. Mr. *John Locke.*] Is it an advantage to the grower, as well as to the merchant, that the quantity grown in the country should be known?—I should think it must be an advantage to every person who has an article to deal in, that he should know how much there is of it.

6328. Do you likewise think that marking the hops is an advantage to the public at large, and to the persons engaged in the trade?—I think it is an advantage.

6329. Do you think it is an advantage to those who grow good hops that they should have an opportunity of marking them, and that hops from other places should be marked also?—Yes.

6330. Do you think it makes the trade fairer?—Yes; but it must necessarily always be so; those who grow good hops must mark them unless they make it penal to mark them.

6331. Do you think it is a good thing to make it penal for the person not to mark them?—I think if there were no law upon the subject there would be no difference in that respect; they would go on marking their own hops, the good ones at all events.

6332. In that case, if a person marked with a wrong mark might not you proceed against him by action?—Yes.

6333. Do not you think that it is more convenient to have a penalty instead of each particular individual being obliged to proceed by action?—It would, perhaps, be safer; but that is a matter upon which my opinion is not of more value than that of anybody else. I think it is better that all the hops should be marked as they are grown, with the parish and the grower's name; but I think that if you did away with the penalty for not doing so, the result would be just the same as it is now; those who grow good hops would mark them.

6334. Mr. *Bass.*] Seeing that at present every man is compelled by law to mark, do you think that the result would be the same if the obligation ceased?—Yes; because all those to whom the mark was in the least degree valuable would mark their hops.

6335. What would those do to whom the mark was not valuable?—We should know what they were.

6336. *Chairman.*] Do you think that it would be a benefit to the English growers to get rid of the Excise duty?—I have no doubt at all that it would be a benefit to get rid of the Excise duty, taken *per se*.

6337. Do you think that if the Customs duty were taken off also, they could fairly compete in English markets with foreign hops?—The Committee have the prices; the answer to that question is a mere deduction from the prices that I have given.

6338. Mr. *B. Hope.*] You have just stated that half an acre of land in Bavaria with the poles upon it was let for 4 *l.* a year; have you made any calculation as to what an acre of land under the same circumstances in Kent would let for?—No.

6339. Mr. *John Locke.*] Were not the crops in 1855 and 1856 unusually abundant?—Yes.

6340. Have the prices in England been below the cost of production?—In 1855 there was a very peculiar crop; the average price perhaps would show you that they paid the hop growers for growing; but a large proportion of them were so exceedingly low and brown that they could not sell them at anything like the price, and many keep them to this present day; as to those who did sell at about 70 *s.* or 80 *s.*, it paid them pretty well; but there was one third of this crop that they could not sell; and this last year they must have lost money; they must have lost very largely indeed.

6341. Have the brewers laid in a large stock?—I really do not know.

6342. Have they bought largely?—I do not think that they bought so large

Mr. *G. G. Richardson.*

20 July 1857.

a stock this last year as they did the year before, as far as my knowledge goes.

6343. Did they lay in a large stock in 1855?—They did, and at higher prices than they could have laid them in this year.

6344. Have you no idea of what stocks are laid in?—I have not the slightest idea.

6345. Do you know what amount of the hops of 1855 and 1856 is not yet consumed?—No.

6346. Mr. *Bass.*] Do you know the annual consumption of this country?—No; we can only get at it by taking the number of quarters of malt that are used.

6347. Mr. *John Locke.*] Do you know whether the brewers have made large purchases of Bavarian hops within the last three or four months?—No; I do not think they have; not through me, certainly; I have heard that a great many Bavarian hops have been sold, but I do not know it to be the case.

6348. Supposing that at the present time, the excise duty being 18 *s.*, the foreign duty upon hops were reduced from 45 *s.* to 20 *s.*, do you think that that would be fair to the English grower?—No, certainly not; my great point is this, that the Excise duty that is charged upon English hops is not charged only upon those that are wanted for consumption, but that the whole of the growth that is grown in the country has to pay it; whereas for the foreign hops the charge is only made for those that go into the copper.

9349. Do you think that the difference between 18 *s.* and 45 *s.* is a fair difference?—I do not mean to say that that is the exact amount that it ought to to be fixed at; but I think that there ought to be some difference between the two upon that ground.

6350. Mr. *Bass.*] Is there any other ground upon which there should be a difference between the two?—Not that I know of.

6351. If that difficulty were removed, if the English hops could be put into bond, would you think that the two duties ought to be equal?—Then you go into the whole free-trade question, and it seems to me that the same arguments would apply to one case as to another. I can no more defend protection upon hops, than I can defend protection upon corn; but it is not an equal thing to charge the same duty upon both.

6352. Mr. *John Locke.*] Do you think that the Customs duty ought to be higher than the Excise duty?—Yes, to compensate for the fact that you are charging upon the whole produce in one case, and a selection of the growth in the other.

6353. Mr. *Bass.*] How is it that it is of greater importance to the English grower?—Because you cannot easily regulate the growth; in 1855, you had nearly 800,000 *l.* duty. The country does not require them, and the growers still pay the duty upon them.

6354. Could not he get it back again if he exported them?—No; he could not get above 15 *s.* for what he exported, and, moreover, where is he to export the hops to; he will get nothing for them, and he would lose the difference between the duty and the expense of cultivation; and that proves the hardship. He will get his duty back, and nothing else.

6355. Mr. *Bass.*] What does the foreigner do when his hops are worth nothing but the duty?—I do not know that that would be worth taking as an example; the hops are those which could not have been sold; but I have known instances where the grower has got nothing more than the duty.

6356. Mr. *John Locke.*] Do you recollect an interview with Mr. Hodges, at the office of the Hop-planters' Committee, at which a foreign merchant spoke of the price at which he could produce hops?—I recollect the circumstance.

6357. Did not that gentleman state that if the Customs duty were repealed he could be ready to supply this country with hops to any extent required at 40 *s.* per cwt., within two or three years?—No; I do not recollect that.

6358. *Chairman.*] Who was that merchant?—I think it was a friend of mine from Belgium.

6359. Was he a hop grower?—No; he was a hop merchant.

6360. Did he say what kind of hops they would be which he would furnish at that price?—They would be Belgium hops. It must have been a Belgium man, as I had no connexion with any other foreign merchant at that time.

6361. Mr. *John Locke.*] Do you recollect any conversation about that subject with

with this gentleman?—No; it must have been many years ago, and I do not remember it.

6362. Mr. *Bass.*] Is such a proposition at all credible?—I cannot answer that question in that way. If I am asked whether I think that if the price of Belgium hops were to be 40 *s.* a cwt. the growth would largely increase, I could answer the question; but if you ask me whether it would be in the power of an individual to do that, I should say certainly not.

6363. Mr. *John Locke.*] Supposing the whole Customs duty were taken off, that being known to all the planters in Belgium, could he, as a merchant, after the produce had been increasing for two or three years, sell in this English market as many hops as would be required at 40 *s.* per cwt.?—The question is whether 40 *s.* per cwt. would pay the Belgian grower to grow his hops for this market. It would be only 30 *s.* to the Belgian grower, and I do not think he could do it at that rate.

6364. What do you think he could do it for?—I think that if the Belgian grower could get 2 *l.* 3 *s.* or 2 *l.* 5*s.* he could grow hops for this market, then he would have to pay an additional sum of 10 *s.*, which would make between 50 *s.* and 60 *s.*

6365. Do you think that between 50 *s.* and 60 *s.* they could grow hops?—Yes, I have tried it often; and it comes to much the same as the Sussex hops could be grown for in this country in the market, for they are sold for 70 *s.* or 75 *s.*

6366. Do you think that the cost of production in Belgium is about the same as it is in Sussex?—Yes.

6367. Is the price of hops in Belgium higher or lower than the price in Sussex?—After taking the Excise duty off, I think they are much upon a par, and unless more is given, the Belgian growth will not increase.

6368. Mr. *Bass.*] Have you any experience of any considerable importation of Belgian hops, except in high-priced years?—No.

6369. Have you seen this paper (*The following Paper being handed to the Witness*)?—Yes.

(A.)

Growth.	Old Duty.	Number of Acres.	Weight of Acre.	Average Price in the Borough per Cwt.	Gross Amount of Money per Acre.	Net Amount of Money per Acre, deducting 2 *l.* per Cwt. for Picking, &c. &c.
				Wigan & Co.		Wigan, White, & Co.
			Cwt. qrs. lbs.	£. *s.* *d.*	£. *s.* *d.*	£. *s.* *d.*
1847 - -	216,268	52,327	7 3 13	3 10 9 - - -	27 16 3	12 1 5
				3 5 - Richardson.		
1848 - -	212,481	49,232	8 0 4	2 18 7 - - -	23 10 9	7 9 4
				3 10 - Richardson.		
1849 - -	79,785	42,798	3 1 25	7 14 10 - - -	26 17 8	19 18 9
				10 5 - Richardson.		
1850 - -	232,576	43,127	10 0 5	4 5 3 - - -	42 16 3	22 14 6
				4 11 - Richardson.		
1851 - -	129,580	43,246	5 2 9	8 4 3 - - -	45 16 7	34 13 4
				7 11 - Richardson.		
1852 - -	244,866	46,157	9 3 15	5 6 1 - - -	52 8 1	32 12 9
				5 5 - Richardson.		
1853 - -	152,143	49,367	5 2 27	12 1 - - - -	69 3 6	57 13 11
				12 10 - Richardson.		
1854 - -	47,327	53,823	1 2 15	17 7 7 - - -	28 7 9	25 2 6
				15 - - Richardson.		
1855 - -	398,768	57,757	12 3 12	4 6 10 - - -	55 16 5	30 2 -
				4 10 - Richardson.		
1856 - -	267,705	54,527	9 0 16	3 13 5 - - -	33 11 3	15 5 6
				3 6 - Richardson.		
			74 1 1	£.	406 4 6	257 14 -
Average for 10 years, 1847—1856	198,150	49,236	7 1 19	5 9 6 - - -	40 12 5	25 15 4

Mr. *G. G. Richardson.*

20 July 1857.

6370. Are not some of the figures in it furnished by yourself?—Yes.

6371. It appears by this paper that the average net produce per acre for 10 years, exclusive of the expense of picking and duty, is a little over 25 *l.*?—Yes.

6372. That is a calculation made upon the average prices in the Borough for the last 10 years?—Yes.

6373. Then according to that opinion, the average net price per acre realised upon the growth of hops in this country for the last 10 years has not exceeded 25 *l.* 15 *s.* per acre?—No, I will not say that; that is not a fair way to put it, because you ought, in order to make the return in this case absolutely correct, to have the exact quantity of each particular class of hops sold at those prices. For instance, here, in 1854, it is no doubt perfectly correct that that is the net amount of money received per acre, deducting the cost of production, but that conveys a very incorrect impression, because I know of many who did not receive a halfpenny.

6374. Is not the average of years the best test?—Yes.

6375. Supposing the average profit of the kingdom upon the average under cultivation in 1854 to be 22 *l.* a hundredweight, would not it be a better result than if you went back to 1847, and you found that they only got 9 *l.* per acre, although in one case they grew 2 ½ cwt., and in the other 8 cwt.?—I would not.

6376. They grew much more in 1850 than in 1847?—Yes, undoubtedly; a great many people made a fortune in 1854, and in 1847 they all lost a little. But that average is hardly to be depended upon, because this is the average price of Sussex and Kent hops, and to make it correct, you want the quantity of Sussex and the quantity of Kent. Here it is taken as if they were all of the same quantity.

6377. Mr. *W. Martin.*] Is it the fact, that the whole quantity, multiplied by the average price, does not make the total?—Quite so.

6378. Mr. *Bass.*] Does not that, according to your judgment, represent the average price of hops sold in the Borough in the years put down?—£. 3 5 *s.* represents the average price in 1847; the hops of Sussex being at 60 *s.* and those of Kent being at 70 *s.*: the average of that is 65 *s.* If there are the same quantity of Sussex as of Kent hops it is fair.

6379. Is it the fact that that is not the average of all the hops sold, but the average of various sorts without a calculation as to the quantities of each?—It is impossible to put the exact quantities of each.

6380. Is not this an approximation?—It may be; but it may be very erroneous; it is not to be depended upon.

6381. Then this calculation, which you were kind enough to make with so much trouble, is of no use whatever?—No, I think not according to what appears here, because we cannot get the quantities that are sold; for instance, I take 1854; the price of Sussex hops was 15 *l.*, and the price of Mid-Kent 20 *l.*

6382. Have you ever intimated any objection to its being a fair average of the total quantity of hops sold?—It is a fair average of prices. This is exactly what I was asked to bring in; but I am sure it is not to be depended upon.

6383. Mr. *J. Locke.*] Those are the facts; but you do not agree with the deductions from them?—No.

6384. Mr. *Bass.*] What is the meaning of this column, which is headed, "Average price in the Borough per cwt."?—This was the average price. If you take Sussex at 70 *s.* and Kent at 90 *s.*, the average is 80 *s.* But if you want to get the true quantity that the planters have received this will not give it.

6385. It does not say that this is the average price of Kent or of Sussex hops, but the average price in the Borough?—That is the average price of hops.

6856. By the side of each there is another set of prices. I understand them to be the average prices of the different hops sold in the four months; is not that so?—Yes, in the main; but they do not tell us how many hundredweights there were.

6387. Could you give us the price per acre?—I could not do it, nor could anybody do it.

6388. In point of fact, this table does not show the average price of hops, but the

Mr. G. G. Richardson.

20 July 1857.

the average price of different sorts of hops?—It represents the average price of hops at the day, but not the quantity of each.

6389. Mr. *Brand.*] Have you exported both foreign and British hops?—Yes.

6390. To what country?—I have exported only to Australia for years. I once exported, on somebody else's account, some English hops to Bavaria.

6391. Do you find the English hops important for the Australian market?—Yes; they make more money than both Belgian and Bavarian. I have exported foreign hops to Belgium, but that was merely to have them dried.

6392. Mr. *Bass.*] What is the meaning of the column in your statement, headed, "Net Amount of Money per Acre, deducting 2 *l.* per Hundredweight for Picking, &c."?—That column contains all that can be shown; but these figures, I say, are not to be depended upon, because we have not the quantities sold at these prices from year to year.

6393. Was not it rather unreasonable to ask you to trouble yourself to put down figures that were not to be depended upon?—I have filled in what I was told.

6394. Did you ever make any objection to its being a fair representation?—No; I gave the thing to be done, and it was done. The quantities are liable to error in consequence of the different quantities of different sorts. Making these figures out it comes to that result; but I think it is not to be depended upon.

6395. Then in point of fact the figures do not represent what appears upon the head of the paper?—That paper does not represent it fairly; I was asked to make it out, and I have handed it in.

6396. And having handed it in, it does not represent what is at the heading?—I think it does.

6397. What is the meaning of the column headed "Gross Amount of Money per Acre"?—That is the result of these figures; but I maintain that it is not correct; you cannot get a paper filled in in that way that nobody could dispute.

6398. You must get an approximation?—Yes.

6399. Is this an approximation?—I filled in the columns under those headings as correctly as they can be done.

Mr. *William Harryman,* called in; and Examined.

Mr. *W. Harryman.*

6400. *Chairman.*] YOU are a Hop Factor, I believe?—I am a Hop Factor, in the Borough.

6401. Are you a merchant also?—No.

6402. What part of the country have you transactions with?—I have a large connexion, extending over a number of plantations, but principally in Middle and East Kent, the Weald, some part of Sussex, and Farnham.

6403. Are the Farnham hops sent up to you in the Borough, or, generally speaking, do you send down to Weyhill fair?—We always go to Weyhill fair; we sell them there sometimes for the planters.

6404. You sell them at Weyhill for the planters?—We sell them at Weyhill for the planters to the merchants.

6405. Is there any return of the prices of Farnham hops at Weyhill fair for the periods of the year?—Not that I know of; not any published return.

6406. Is not it generally the case, in the transactions between the factors and the planters, that the factor advances money to the planter?—He does, in some instances; but that is very much exaggerated, in my opinion.

6407. In the low-priced years, when there is a heavy duty, do not the planters naturally have recourse to the factors?—I do not know that he has in the low-priced years more than the high ones; my opinion is, that he has more recourse to him in the high ones; for the hop planter generally is a much worse seller at high prices than he is at low ones. I only go by my own experience. I find that the hop grower wants something more, and frequently overstands the market; but when there is a large crop, he fears that there is never going to be any trade; but as there is an increased consumption every year, and from the factors finding middlemen to come in and take them, there is generally a much greater trade in those years than the planters expected.

Mr. *W. Harryman.*

20 July 1857.

6408. Do you think that it would be an advantage to the planters if the duty were paid sooner?—If the duty were paid upon the 1st of March, I am satisfied it would be a great benefit to the grower of hops.

6409. Mr. *Brand.*] Do you mean the whole of the duty?—I mean the whole of the duty; because when they have the hops to sell, they would not have the payment of the duty to make, and they frequently, from getting credit, are tempted to keep up a larger plantation with the Government money, which is against them in the end.

6410. *Chairman.*] Is not the system of allowing credit sometimes an advantage to him, where he does not find a ready sale for his hops?—I never did know a grower who was pressed, because he can always get money in cash advanced or an acceptance, where he has hops in the hands of his factor. I do not believe that it is any injury to him.

6411. Do you think that if he has not sold his hops by the duty day, there is no difficulty in obtaining money upon the crop?—Not the least.

6412. Of course he has to pay interest upon that money?—Decidedly he has, like any other man of business. If he has an advance, he must pay interest for the money.

6413. In fact they incur one debt to pay the other debt, which they owe to Government?—Yes; but I seldom ever knew the time when, if he was determined to sell his hops, he could not find a market.

6414. Is it not a question whether the market would pay or not?—Yes; he could always get a price that would pay the duty. But the planter must not take one year, he must take several years. This is not an article upon which you must depend upon the crop of one year; that will regulate the price a little more.

6415. He is obliged to borrow money to pay the duty, and he has naturally to pay the interest?—Yes.

6416. Do you think that if the duty were collected at once, he would not oftener be obliged to borrow money to meet it?—I think that if he had the duty to pay upon the 1st of March, he would not be tempted to keep up the plantation that he does. I find generally as a commission man, having a large connexion, that those men who borrow money are generally men who are going to increase their plantation, and most likely to take a farm, at more rent than those who have capital will take it at.

6417. You have no doubt that the effect of long credits is to tempt men to embark in business?—No doubt of it.

6418. You are acquainted with the tables of prices published in the Borough?—I have seen those average prices, but I do not depend upon them myself; I would rather take my own sale-book, it is such a precarious trade, and the prices are so various, even for a week together, that although there may be general averages, I do not depend upon them myself.

6419. May not you take them as a general exhibition of what they may be?—I do not know. I see that the average price of 1854 hops was 15 *l.* 19 *s.*, and I should put the average at much less than that. I am only looking at the last item. I have not my sale-book here with me, but if I were to take the whole crop through the year, I think the average price was much less than that; it is a difficult thing to go through. I came away in a hurry to-day, and did not bring my sale-book with me; I sold a large proportion of the 1854 growth; and I should be very happy to tell the Committee every pocket of hops I sold, with the price; I think that would be a fair criterion of what they were sold at.

6420. Mr. *Bass.*] Would that give the average price, unless you sold an equal quantity of Sussex and Weald of Kent hops as of Mid and East Kent?—It will give it your way; I will take the only average price of mine, and mine were the best hops.

6421. Have not you a larger quantity of the best hops than of the others?—Yes, and that goes in my favour, because I say that I believe that I have a much less average than the 15 *l.* 19 *s.* I can produce my sale-book, which contains every growth, and what the hops were sold at.

6422. Would you say the brewers who paid upon the average 15 *l.* 19 *s.*, paid much more than they ought to have done?—He may come into the market at a different time; he must take all under the year.

6423. *Chairman.*] Is not that average taken for one year?—I do not know if

if it is taken for one year. I was asked the average price of hops, which I understand to mean the average price that they sold for by the grower in 1854, I have nothing to do with the brewers.

6424. Do not you think that that may be the price that was paid in the Borough by the brewers?—It might be the price, if you take four months of the year as the average; beyond that it is much overdone.

6425. Mr. *Bass.*] You would call it an average of the first four months of the season?—I should call it an average of four to five months.

6426. Generally, do not the hops sell higher then than they do afterwards?—It is generally so in high priced years; the brewers come in, and the growers thinking that it is a short crop, and they can have any price, hold out, and they often find that they have overstood the market.

6427. Does not it happen three years out of the four that the hops fall after Christmas?—Decidedly not.

6428. Can you say that you sold a certain quantity of Sussex hops at such a price, a certain quantity of Weald of Kent hops, and a certain quantity of Mid-Kent, and a certain quantity of East Kent?—I can give all those. I can tell you what we have sold, and the parish from which they came. You may take every month in the sale book, and the price at which the hops are sold.

6429. Is it decidedly your opinion, that in three years out of four hops do not fall in price after Christmas?—I think it is oftener that they do, but I would not say three times out of the four, because, if we begin with 1852 we begin with 76 *s.*, and it went to 6 *l.* In 1853 and in 1854 there was a fall; in 1855 there was a rise after the first part of that year. In the latter part of 1855, from the whole crop being so bad, almost blighted in certain parts, they went down to a low price. After part were picked, a blight came on, and the hops were almost worthless; they were so bad that they could not expect the brewers to come in and give them a good price for such unsound bad hops.

6430. Can you tell the Committee whether there was a fall in the price of hops after the picking in 1854?—There was a fall all through the year after the first four months, but I could not say what unless my sale book was here.

6431. Did not the high prices of the crop of 1854 continue longer than has ever been the case?—They were the nominal prices; but we could not sell. The merchants had bought a good number of hops, and no doubt they were anxious to keep the price up as long as they could, till the brewers would take them off their hands. But I am sorry to say that we, the factors, could not get the merchants to buy new hops.

6432. Mr. *Brand.*] Could you give the Committee the amount of the sales for 10 years, distinguishing the various kinds of hops month by month?—It would be a very difficult thing to make out.

6433. *Chairman.*] Could you do it for an average of 10 years?—I will endeavour to do it, but I should be very glad to produce my sale book here, and the Committee would then have all the prices therein.

6434. Mr. *Bass.*] Who is the author of that statement?—(*A paper being shown to the Witness.*)—I do not know; it is an account of the fluctuations in the hop duty.

6435. Mr. *Brand.*] Has that paper any authority in the trade?—I do not think it gives the prices of hops. Those prices have been taken from the only contract that is taken for hops, which is the contract for Greenwich Hospital. Those prices the Government have often published as being the average prices of hops.

6436. Mr. *Bass.*] What does that statement give as the price of hops in 1847?—£. 3. 10 *s.*

6437. What is given in 1848?—£.2. 15 *s.*

6438. What is given in 1849?—£.7. 10 *s.*

6439. What is given in 1850?—£.3. 10 *s.*

6440. What is given in 1851?—£.6. 10 *s.*

6441. What is given in 1852?—£.4. 5 *s.*

6442. What in 1853?—£.11. 11 *s.*

6443. In 1854?—£.15. 19 *s.*

6444. In 1855?—That is not published here.

6445. *Chairman.*] Have you any dealings with foreign hops?—I have never sold 300 pockets since I have been in the Borough.

Mr. *W. Harryman.*

30 July 1857.

6446. Mr. *Brand.*] Have you never purchased foreign hops?—I cannot say that I have not. In the dear year of 1854 I had a few.

6447. Mr. *B. Blakemore.*] Have you any dealings in Herefordshire and Worcestershire hops?—We sell a few hops that are sent to London from three or four growers.

6448. Do many hops from those districts come to London?—We have many of that kind that merchants buy there, and come and put them on our boards to sell.

6449. Is theirs chiefly a local trade?—It is chiefly a local trade. London often sends Worcester her hops, and we get a few from them.

6450. Which do you think is the most profitable trade, the local trade of Worcestershire and Herefordshire, or such a trade as is carried on in the Borough?—The Worcestershire and Herefordshire trade is governed entirely by the London trade.

6451. If they were getting higher prices there, they would go from here to there?—Yes; or if we get high prices they will come here.

6452. Is the growth of that district which is sent up to this market as good as that of Kent or Sussex?—Not so good as the best Kent hops.

6453. Mr. *Bass.*] Is there a great difference?—They come very close up to them; but I say that the best Kent hops, the East Kent, and the Mid-Kent, are stouter and better than the best hops in Worcestershire and Herefordshire.

6454. The price is higher?—They are generally higher.

6455. Mr. *B. Hope.*] Do you consider Worcestershire hops better than Weald of Kent hops?—There is a difference of opinion between the consumers. For myself, I think that in the common hops of both there is very little difference; but the best hops that I have seen of the growth of Worcestershire and Herefordshire are decidedly better than the best grown in the Weald of Kent except they were Golding hops planted in the Weald of Kent. My remark does not apply to the places where they have been growing Golding hops, which they have lately done in some parts of the Weald in the last four years.

6456. Mr. *B. Blakemore.*] You stated that in your opinion if the whole of the duty were paid in March it would be a benefit to the planter. How early in the year can the amount of duty be ascertained?—The Government now give us returns sooner, because it is a benefit to the trade. The factors generally have been anxious to get the duty published. A representation was made to the Excise two years ago, pointing out what a benefit it would be to the growers to enable them to sell sooner, which they cannot do on account of many buyers waiting to know what the crop was; and the Excise have now given it to us sooner; they have now given it to us, I think, about the 20th of October.

6457. Then you would have the duty paid upon the 1st of March?—I think it would be a benefit to the grower, because he would not have to pay the duty in November, at a time when his hops are ready for market.

6458. I think I have understood you to say, that the amount to which the planters have recourse to the factors has been greatly exaggerated?—Very much so.

6459. Are the planters that you are acquainted with usually men of capital?—A great many of them are.

6460. Then, to say that they are not men of capital generally is not fair towards them?—It is not fair to them; I come before this Committee, and my ledger is quite open to the Committee; I have been very careful in going through it, and I find that I have sold for 724 different growers in the last two years, and we have never made an advance to one-tenth of those planters before we have had their hops.

6461. *Chairman.*] What districts of country do you deal with?—The districts of country we deal with are Middle and East Kent, the Weald of Kent, part of Sussex, and Farnham.

6462. Could you tell the Committee how many of those 724 growers belonged to East Kent, Mid-Kent, Sussex, and the Weald of Kent respectively?—I could not now, but I could take it out of my book without any trouble. There is a large portion of them in Mid and East Kent and Farnham, and there are a good many in the Weald.

6463. Mr. *B. Hope.* Do you consider that the planters, generally speaking, have the money themselves to pay the duty?—Decidedly they have.

6464. Do

6464. Do not they go to any quarter to raise it?—Not to the extent which is represented.

6465. Do you know to what extent they are creditors to the country bankers?—I think the factors find that out, because, if the banker makes an advance in cash to a man, he asks who is his factor; he wants to get an acceptance from the factor.

6466. Mr. *Bass.*] When you get the hops into your possession do you make any considerable advances?—Some have an open account with us. If the grower sends up 50 or 100 pockets he draws upon us for 200 *l.* or 300 *l.* for the season, and so it goes on. When we do not make advances we pay the money the second Saturday after we have sold, either to the planters or to the bankers.

6467. Mr. *B. Hope.*] Do you make advances simply upon a deposit of the hops?—In the season, as the grower wants the money, he draws for it.

6468. *Chairman.*] It is a payment upon account?—It is a payment upon account, often to the amount of 200 *l.* or more. Whether we have sold the hops or not, we do it; we never think anything of that; but a large portion of the growers never draw any money upon account; but we pay the second Saturday after the hops are sold, to their bankers themselves.

6469. Mr. *B. Hope.*] Can you sell the hops at your discretion?—We find often that the growers who are planting and keeping up a larger plantation than their capital warrants, if the prices are moderately low, will not sell.

6470. Mr. *Bass.*] Could you tell the Committee what portion of the hops are sold in the first four months, and what are held over?—I should say there is a much larger portion sold in a large-crop year in the first four months, than there is in a short-crop year at high prices.

6471. Mr. *B. Hope.*] Does not everybody hold for a rise in a short-crop year?—I believe that all the factors will bear me out in saying that the planters generally are worse sellers at high prices than they are at low prices.

6472. Mr. *Bass.*] Do you mean to say that they are not such willing sellers?—They are not such willing sellers; they think it is such a short crop, that they may have any price they like for it.

6473. *Chairman.*] Do not you think that the duty has something to do with it?—Not anything; I do not think that the grower takes any notice of the duty at all then.

6474. It does not enter into his calculation?—Not at all.

6475. Mr. *Bass.*] Has not he to pay the duty in November?—In high prices there is generally a short crop.

6476. Supposing that we have, according to the anticipations of some gentlemen, a duty under 100,000 *l.* this year, might not the fact that they had the large duty of last year's crop to meet next November influence the sale?—We never find that in the years when there are high prices with those growers who have any hops to sell. Hops are seldom grown in the Weald of Kent or Sussex in blighting years.

6477. Is not what is called a short-crop year far more advantageous to the planters than a large crop?—To those who grow them, it is.

6478. For example, was not the crop of 1853 a profitable crop?—It was to some growers who sold them; indeed, to all who sold their hops in the first part of the season.

6479. I find here, upon a calculation furnished me, that at that time the net produce, deducting 2 *l.* a cwt. for picking and duty and other expenses, upon the crop of 1853, would be upwards of 60 *l.* an acre, while with the crop of double that amount in 1856, of more than 10 cwt. an acre, the net produce was only 25*s.* 2*d.*; do you see any reason to doubt that, deducting from the crop of 1856, 2 *l.* a cwt. upon 10 cwt., and from the crop of 1853, 2 *l.* a cwt. upon 5 cwt., that result will be found to be correct?—In 1853, in some places the men had a ton, and in others a cwt. I do not see how you can get an average. Some one grower would be very lucky in any one time, and another man would have a total blight.

6480. Upon the whole, do you consider hop-growing a good business, if prudently conducted?—I do, decidedly.

6481. And you would not like to see it disturbed by doing away with the duty?—I do not think it would be any benefit to the planter or the brewer; I think that the consumer pays the duty.

 6482. Then

Mr. *W. Harryman.*

20 July 1857.

6482. Then if the consumer were relieved from 400,000 *l.* a year, would not he get the benefit of that reduction?—I never found the brewers, whether they bought their hops at 6 *l.* or 4 *l.*, made a reduction in beer.

6483. Have you never heard of their making a difference, whether hops are 6 *l.* or 16 *l.*?—Yes, I have heard of it in one instance, and I think they kept it up 12 months, although the price of hops at the end of eight months had fallen from 16 *l.* to 8 *l.* or 9 *l.*; but I would not say so, without having my sale book here. The brewers buy of the merchants and we sell for the grower, but unfortunately the merchants have rather overbought themselves, and they have to hold that stock till the brewers want them.

6484. Would not it be rather better for the brewers to come to the factors than to buy of the merchants?—The grower depends upon the hops to pay his rent and the past expenses, and they look to have money advanced to them upon the hops; and the factor has to look to the merchant or speculator. When the prices are low, we are frequently ourselves tempted to give a great deal of credit, and lose large sums of money, in endeavouring to get hops out of the planters' hands. Perhaps Mr. Richardson could better tell what credit the merchants give; I believe it suits the brewers to have credit, which the factor is unable to do.

6485. Are not you well acquainted with the practice of the great London brewers?—I believe some buy for cash and some for credit.

6486. Is not it the practice for them to buy almost always for cash?—I cannot answer that question.

6487. Mr. *Blakemore.*] Have not the brewers generally fared rather well?—Since I have been a factor, which is 25 years, I do not think the brewers have much fault to find with the price that they have given for hops.

6488. Has the price of hops been satisfactory to the grower?—Yes, I think it is, when the planters do not go on borrowing money and hiring land for double what it is worth; I think it has been very satisfactory to them.

6489. Then in point of fact, if the foreigner were to test them a little, would not they bear squeezing to a certain extent?—No; I think it has been a fair paying trade; but I do not think that, taking the average of it, hops are such a paying article that you could control anything about the crop.

6490. Then, since the hops are a more paying article of produce than anything else that you are acquainted with, and since the consumption of other very important articles and the result of the revenue is very much dependent upon the produce of hops, would not it appear the most sensible course to make your extent of country as wide as possible, in order that when the crop fails in one county you should have a remedy for that in hops in the produce of another?—I think not; I know that there are many expenses upon the home-grower; and we have always grown sufficient hops here; there has never been a scarcity for the last 27 years.

6491. Has not there ever been a complaint that the supply has been less than the demand?—Decidedly; in one year of high prices. But I think that was in favour of the brewer, because the hop growers think that it is going on, and they attempt to plant a great many hops.

6492. You would not advise any Act that would discourage the profit upon home-grown hops?—As that was certainly my own opinion, and thinking I might be called before this Committee, I have attended markets, and seen the bulk of the growers, and I am sure that out of the 724 growers that I named, not one-tenth are for any alteration whatever.

6493. It has been stated that the alteration will be an improvement to the planters; is that the case?—They would gain nothing by any alteration; because I think the consumer pays the duty.

6494. Does the duty press heavily upon the consumer?—Decidedly not, if you only see the amount it would cost the consumer in a pot of his beer.

6495. What would that be?—It is a very small item indeed; not enough for the consumer to feel in any way.

6496. Is it desirable that any alteration should be made on account of the factors?—I think that if we did not sell English hops, and the foreigners came in, it would drive us to alter our trade. I do not see that it would be any injury to the factors.

6497. As to the merchant, does the existing system affect him injuriously?—I think the merchant would much prefer having things as they are; it is a much

much more satisfactory trade than the foreign trade would be. The Excise duty, in my opinion, is a great protection to the brewer as well as the merchant, because the hops that are sold here have each a mark of the date upon them, and there is never any alteration in the cloth; whereas the foreign hops coming in here, from having no brand upon them, are repacked and doctored up, and all sorts of things are done. It was thought that, in the high prices of 1854, a great many hops that were 26 years old were sold as yearling hops about the country.

6498. Would the alteration benefit the brewer?—No, I think not; I do not believe it would be any benefit to the brewer. I think he has great protection from the Excise, because he knows the article which he buys.

6499. Do you think that the brewers are in a position to require any great relief?—I cannot think that the hops have any great effect upon them, from what I see of brewers and breweries.

6500. Do you think that the variations of the price of the hops, or the uncertainty of the crop, leads to any extensive use of deleterious drugs or any other pernicious things in beer?—No, I think not.

6501. Do you think that the public would soon discover it if they did?—No; I think that the beer as brewed is first-rate, and that nothing deleterious is used by brewers. If we could get rid of the adulteration by publicans, it would be a great benefit to the grower of hops, the brewer, and the barley grower.

6502. Mr. *Brand.*] Are you aware that in some instances the publicans brew their own beer?—Yes.

6503. Mr. *B. Blakemore.*] Do you think that the brewers are most particular?—I think that there is a great competition between brewers to brew a good article. I know that when I first went into business, 25 or 30 years ago, we could not get a glass of beer fit to drink, and now you go to no country brewer but what the beer is good.

6504. The competition is not to brew cheap beer but wholesome beer?—Yes.

6505. Mr. *Bass.*] Is there no competition in the price?—There may be a competition in price; that I could not say.

6506. Of course you are aware that, upon an average of the last 10 years, the amount paid in duty was 400,000 *l.* per annum?—Yes.

6507. And you have told us that the consumer pays the duty; so that, in point of fact, the duty paid by the consumer amounts to 400,000 *l.* per annum?—Yes.

6508. In the extreme prices, such as 1854, is not the high price of hops calculated to affect the price of barley?—Not to the extent supposed by many of the brewers whom I have spoken to upon the subject; I do not think it does to any great extent.

6509. Have you never heard a brewer say, "There is existing such a terrible price for hops that I cannot pay so much for barley?"—We were told that the representation made to the Chancellor of the Exchequer when he reduced the duty from 2 *l.* 5 *s.* to 20 *s.* was, that if he did not reduce the duty to 1 *l.* and reduce the price of hops, he would find such a falling off in the malt duty as would surprise him. I do not think that was the case.

6510. Are you not aware that when this matter was discussed before the Committee upon a previous day, it appeared that the quantity of malt consumed with the dear hops in 1854 was greatly diminished?—I do not believe that the hops had anything to do with it. I think there was a diminished consumption from the war, and from different causes, and from the high rate of money, and there was not the same demand for beer for the labouring public.

6511. The Committee have been told by the great majority of those who have come before them that the principal difficulty with regard to hops is the malt duty; are you of that opinion?—I think there is no doubt that the malt duty does affect it, because it is so much larger a portion of the price that the consumer pays, and that if it were lessened it would no doubt tend to increase the consumption of beer. But I do not believe that if there was no duty at all upon either foreign or English hops it would increase the consumption of hops so long as the malt duty remains what it is.

6512. Does not the malt duty hinder consumption because it is an impost upon an article to be consumed?—Decidedly.

Mr. *W. Harryman.*

20 July 1857.

6513. The duty being an excessive amount of the cost, it naturally diminishes consumption, is not that so?—I believe that it lowers the price of malt and the consumption, but I do not think it operates so much upon hops.

6514. If it should appear that in any one season the additional price of hops between the average prices and the price of any given year (1854, for example) should approach the burden of the malt duty, would not it be likely to have an effect upon the quantity of beer brewed in the country?—If you are going to put the hop duty at anything like the amount of the malt duty it might affect it.

6515. Would not it be fair to take the average price of hops at 4 *l.* a cwt.?—I should not think that the brewer would find fault if he bought his hops at 4 *l.* per cwt.

6516. Taking 4 *l.* as the average, what would you allow for the average price for the four months after the harvest of 1854?—I think that about 15 *l.* 19 *s.* may be the average price.

6517. If I were to prove to you that I paid 15 *l.* 19 *s.* for the whole year would not you say that my merchant had been very hard upon me?—No; because the merchant had gone and bought them; and many brewers, seeing that there was a short crop, were afraid they should not get hops. You might have bought your hops early; but I think that if many brewers were to give evidence here they would say they had bought hops at a much less price than that.

6518. Hops of the same quality?—I will not say that. If you want the best hops, and come early into the market, you must pay high prices.

6519. Do you brew privately?—No.

6520. Do you know what is about the average quantity of hops used to a quarter of malt?—No; I would rather not go into that, because I do not like to give any evidence as to which I am not perfectly satisfied.

6521. The Committee have had it given in evidence before them that 10 lbs. of hops to a quarter of malt is the usual amount; have you any reason to doubt it?—I could not give any opinion upon it.

6522. Supposing that to be correct, the difference between 4 *l.* per hundredweight, which you call the average price of hops in ordinary years, and 16 *l.*, gives 240 *s.* a hundredweight, which comes to 2 *s.* a pound; and 2 *s.* a pound upon 10 lbs., will give you 20 *s.* a quarter, which is nearly equal to the malt duty; is not that so?—That is a subject I would rather not discuss.

6523. *Chairman.*] You told us that the price of beer has not varied from year to year with the price of hops?—I do not think so, generally.

6524. Do not you think that if, in consequence of free trade, the price of hops became uniformly low, it would reduce the price of beer?—It might, if you could regulate the crops; it is such a peculiar article, I only give an opinion upon it; I do not think you could regulate the price of hops; we have generally had them at a moderate price here, ever since I have been in the trade.

6525. Does the brewer leave a margin?—Whenever they are cheap, the large brewers generally buy large stocks at low prices, for then it pays them uncommonly well. It is the same with any other article, when things are low a man gets his stock.

6526. Supposing that the price of hops became generally steadily lower, would not the competition among brewers induce them to lower so much in the price of beer?—I think that the competition among brewers is to brew a good article, and I think they would brew a better article, and not lower the price.

6527. And the consumer would get a benefit in that way?—Yes, which he is now doing at all events in this year, as compared with 1854, when they got bad beer.

6528. You think that the consumer pays the duty?—Yes.

6529. Do you believe that the hop growers in the last 10 years got 4,000,000 *l.* more for their hops than they would have done if there had been no duty?—I believe they have got the duty additional.

6530. Do you believe that they have got 4,000,000 *l.* more paid into their hands than they would have done?—Decidedly, if that has been the average of the duty.

6531. If

6531. If hop growing is so good a business, how do you account for the amount of distress that exists in the hop districts?—I believe it arose in the first instance from the Government having once given the planters credit in consequence of representations that were made to them. When the deputation went to the Chancellor of the Exchequer last Monday, the maltsters said, "We find that the hops growers are making an agitation; we think that it is time that we, the maltsters, should ask the Government to give us credit."

6532. Mr. *Bass.*] Do you think it as reasonable to give it to the maltsters as to the hop growers?—I think the maltsters are as much entitled to it.

6533. *Chairman.*] Do you think the hop growers are imposters?—I think that many of the growers who have been in to the Chancellor of the Exchequer had been men who had gone into larger plantations of hops than their capital has warranted; they would have been doing well with 20 acres; with 40 acres they must have more credit to work them.

6534. Do you look upon long credit as the cause of the distress?—Yes.

6535. Do you think that making the credit short would be a benefit?—Yes, I think there is no question of it. It comes round to paying-prices as soon as the market for which they are grown ceases to be overdone; and if the duty is payable upon the 1st of March, the grower has no duty to pay in the season when he has his hops to sell.

6536. Mr. *Bass.*] Is not it generally believed, that many of those gentlemen who went up to the Chancellor of the Exchequer a few months ago for some mitigation of the time for the payment of their duty have the principal portion of their money in the Hastings Bank, and are creditors upon it now?—I cannot say. I have a small connexion about there. I have heard it said of some of the hop growers round there. I think it is an unfortunate thing for these growers that the Government have given them credit, because they could have paid their duty, and now they have lost it in the Hastings Bank.

6537. *Chairman.*] Do you think that the cause of that distress is often not real, and that when it is real it is caused by over-production?—I think many growers, who are not satisfied with getting land at a moderate rate, give 4 *l.* or 5 *l.*, double the rent that the land had been let at, from a desire to get the land, because there are hops upon it.

6538. Do you think that England produces, upon the average of years, more hops than they require for the supply?—Decidedly, there are always sufficient hops grown; because, often a man has one lucky year, and makes a great deal of money, and perhaps grows enough hops to pay for the freehold of his farm; he is tempted to go and take a great deal of land. It always was so, and perhaps always will be; it is a complete lottery.

6539. Particular years are over-productive, but are not other years, in the same proportion, under-productive?—If it were not so, the growers could not keep up anything like the present plantation.

6540. Should you say that upon the average of 20 years, the cultivation of hops in England is too great?—I believe beer to be such a necessary article now, that it is a great thing always to have a good supply of hops.

6541. You say that the distress among the planters arises from over-production; supposing the production were reduced, would not the consumers find in a year or two that they had not hops enough?—They may find it for a year or two, but not more. It will not always be over-done; our plantation is down to as low a point as it has been for the last 25 years. We have not a return at the present time, it will be published next week, of the number of acres in plant this year; but you have a return up to the 1st of last August, and there was a great quantity of hops grubbed this year from the low prices. I believe the plantation of this year will be under 49,000 acres, and that many of the growers will get such prices for their hops that I have little doubt you will have 6,000 to 8,000 acres planted this year.

6542. Mr. *Bass.*] Has not the acreage gone down as low as 42,000?—I am not certain of that.

6543. Mr. *W. Martin.*] I suppose there has been a great increase in the average consumption of the last 10 years, as compared with the first 10?—The consumption has increased, because it is a different class of beer that is brewed.

6544. Has the export trade to Australia increased?—The export trade to Australia has increased to 700,000 lbs.

Mr. *W. Harryman.*

20 July 1857.

6545. *Chairman.*] If the distress arises from our production in certain years, does not the duty aggravate the distress much in those years?—I believe the price would be still less, if it was not for the duty. Quite the amount of the duty less, because many growers who have come here, complain of the price at which they were obliged to sell their hops grown in 1855. In the first part of 1855, the prices of common hops were ranging from 80 *s.* to 90 *s.*, and a great demand for them, but in the middle of picking the hops, were struck with a black blight, and many growers would not pick them, but still the growers who picked them, knowing that they had the duty to pay, must expect to pay the duty if they would pick them.

6546. What should you think was the price of hops in 1848?—£2. 15 *s.*

6547. Do you mean to say that if there had been no Excise duty the price would have been 1 *l.* 15 *s.*?—I believe that the price of hops was so small that they picked them merely to get the duty, and to take the chance of getting a short crop next year. I think the duty is a benefit to the grower and consumer.

6548. Will you explain how it is a benefit to the grower?—I think it tends to keep the plantation in check; I think if there was no duty the growers must always grow more hops than they want, if there were no Excise duty and no mark, the grower would go to the wall, because otherwise many old hops, from there being no dates upon them, might be sold as the hops of the year, or as yearling hops, and the brewers would not be able to tell the difference between them; it is a benefit to the grower to have a duty on.

6549. Mr. *B. Blakemore.*] In the particular year to which the Honourable Chairman alludes, there was this choice for the planter, either to pick them and sell them, or to leave them to waste?—Yes; but the planters knowing what a precarious crop they are, many of them picked them although they were at a low price, and held them until the following year, and sold them at 4 *l.* and 5 *l.* a cwt.

6550. *Chairman.*] Had not he to pay the duty upon them?—He does not begin to pay the duty till the appearance of the next crop in the following May, and the next half in the following November.

6551. If he wants to hold the hops till the next year, must not he pay the duty?—He has only half the duty to pay till the following May, and then he sees the amount of the crop, but it frequently may have a bad appearance as it had in 1849.

6552. In what other way does the Excise duty benefit the producer, besides restricting the cultivation?—I do not know that it benefits him in any other way; he gets a greater price for his hops from the duty being on.

6553. That is no advantage to him as he has to pay it?—No.

6554. But in those low-priced years does not the duty very much aggravate the distress?—I think not.

6555. Do you think there is no ground for complaint?—I am only the middle-man, but I have taken the trouble to go through my books to see how many growers I have sold for in the last two years, and I am quite sure that there is not one in ten who would be for any alteration; and therefore I do not believe that there is one in ten of them complaining of any distress.

6556. How do you account for so many going to the Chancellor of the Exchequer for relief?—It is only out of one particular district that this deputation came.

6557. What was that district?—I think generally the Wealds of Kent and Sussex.

6558. Is not that the district that has to pay the heaviest duty?—It has a heavy crop.

6559. At the lowest price?—Not at the lowest price. Frequently in Mid-Kent they are subject to a great deal of mould; they are more subject to mould in Mid-Kent than they are in the Weald of Kent.

6560. Mr. *J. Locke.*] Was not the year 1848 the worst year that ever was known?—It was the worst year since I have been in the trade. The hops were very bad indeed; I think in 1855, the latter part of that growth was nearly as bad as in 1848, but I do not know that they were quite.

6561. Mr. *B. Blakemore.*] As to the influence in the price of hops upon the growth of barley, was not the price of hops high in 1840?—The price of hops was very high in the first part of the season of 1840, but they fell rapidly.

6562. We

Mr. *W. Harryman.*

20 July 1857.

6562. We have had evidence that they never were so high again until 1855, is not that so?—They did not rise high, but still they were at a fair price.

6563. In 15 years the price was moderate?—Yes.

6564. You are not a barley grower?—No.

6565. Assuming the price of barley during the year 1848 to have stood at 43*s.* 2*d.* a quarter, is it your opinion that that high price arose from the price of the hops, or the state of the barley grown?—Not at all from the price of the hops.

6566. Do you think that the low price of hops had nothing to do with the price of barley?—I do not think it had.

6567. Do not you think that the quality rather than the price of the hops has an influence on barley if anything has?—For myself, I can only say, I have very little to do with the price of barley.

6568. As it is an ingredient of beer, would not it give an impetus to the trade rather from its good quality than from its low price?—No. I do not think that hops taken upon a broad scale have much to do with the price of barley.

Mr. *Henry John Whitling*, called in; and Examined.

Mr. *H. J. Whitling.*

6569. *Chairman.*] YOU are a merchant in the foreign hop trade, I believe?—Yes, a Bavarian hop merchant.

6570. Is your business confined to Bavarian hops only?—Almost exclusively.

6571. Have you no dealings in Belgian hops?—None whatever.

6572. Or in English hops?—A little in English hops.

6573. Will you give the Committee a statement of the prices of Bavarian hops for the last eight years?—I have that statement here (*producing the same*).

6574. Mr. *J. Locke.*] What is that taken from?—My own experience in the country.

6575. Are those the prices in Bavaria, or the prices which the hops are sold at here?—Those are the prices in Bavaria.

6576. Mr. *Brand.*] Received by the grower?—Received by the grower in the country.

6577. *Chairman.*] Are not the hops dried after they are bought?—After they are delivered; the peasants have realised these prices. They have to be oasted afterwards for the English market.

6578. Mr. *J. Locke.*] Is your evidence from your own observation?—My evidence is from my own observation.

6579. *Chairman.*] Are you going to furnish the average prices of all Bavarian hops?—The average prices of all.

6580. Mr. *J. Locke.*] From what source of information is that made out?—From the peasants, collectors, dealers, and merchants.

6581. Are there any returns there?—There are no returns; you must get them by your own inquiry.

6582. Is that made out from the prices at different market towns, or is it from any particular number of purchases?—These are the average prices from the principal districts of Hersbruck, Spalt, Hallertau, and the neighbouring districts.

6583. Is there any account that contains these returns of the hops, and the market prices?—No; you must get them from the general merchants, and the large country collectors, and the large country growers, and take the average of them.

6584. Have you done that?—I have.

6585. Can you state what number of growers and merchants you have consulted?—I can give it from my book, but not from memory.

6586. Is there a large number?—Yes; perhaps there may be among those 20 to 30 different persons.

6587. *Chairman.*] How many years have you been in the Bavarian hop trade?—My attention was first directed to it in 1846, in Bavaria, but in London, direct, not until the season of 1854.

6588. Mr. *Brand.*] Were you a hop merchant yourself in Bavaria?—My first essay in the hop trade was in the year 1846.

 6589. Will

Mr. *H. J. Whitling.*

20 July 1857.

6589. Will you hand in to the Committee that statement?

[*The same was handed in, and is as follows:*]

List of Prices of Bavarian Hops.

	£.	s.	d.
1847	1	15	–
1848	3	6	8
1849	6	–	–
1850	2	18	4
1851	11	13	4
1852	3	8	4
1853	7	10	–
1854, varying from 12 *l.* to	17	–	–
1855	2	7	–
1856	3	2	–

6590. Will you tell the Committee what the average price of hops was in Bavaria, in the eight years from 1847 to 1854, inclusive?—About 6 *l.* 5 *s.*

6591. Mr. *Brand.*] What price have you taken in 1854?—I have taken 14 *l.* as the average.

6592. *Chairman.*] How much must we add for the expenses of picking, and drying, and the carriage to England?—As nearly as I can ascertain it per cwt.; it varies in different seasons from 15 *s.* 6 *d.* to 18 *s.* 6 *d.* per cwt.; that was the expense.

6593. What do you set the freight at?—I have myself paid 7 *s.* 6 *d.* and 11 *s.* 8 *d.* per cwt.; I have included that in the general average of 18 *s.* 6 *d.*

6594. Mr. *B. Blakemore.*] Have you calculated whether there is any loss of weight between the time when the hops are picked and when they are dried?—They are considered to lose 10 per cent. in the drying; that is, in the oasting.

6595. Taking the subsequent expenses as you have taken them, at 15 *s.* 6 *d.*, deducting 7 *s.* 6 *d.* for freight, may we take 8 *s.* as a moderate estimate of the expense of drying and packing?—I think you may.

6596. Which, added to 6 *l.* 5 *s.*, which is the average price, makes 6 *l.* 13 *s.*?—Yes.

6597. Are you aware that the average prices of all the English hops in the borough, for the same eight years, was 6 *l.* 18 *s.*?—Yes, about that.

6598. Mr. *J. Locke.*] Have you imported every year?—I have, for the last three years; since I have been in London I have imported every year.

6599. Mr. *Bass.*] Was there any importation previously?—I think the importation before that of my own was about three hundred bales.

6600. Mr. *J. Locke.*] What quantity did you import those last three years?—In the last year I imported about 1,100 bales; a bale is 1½ cwt. to 2 ¼ cwt.——

6601. Mr. *B. Blakemore.*] Would not you, looking at the variations of prices in Bavaria, of which the lowest is 2 *l.* 7 *s.*, and the highest is 17 *l.*, think it impossible to form any calculation upon the system of averages?—I do not think it possible.

6602. Were those hops sold at 2 *l.* 7 *s.* as good in quality as those which fetched 17 *l.*?—They were not so good in quality, and there was besides a much larger supply of good hops.

6603. Do you think that the system of averages is inapplicable to an article which varies so much from one year to another?—Yes; of my own experience in the country I should say so.

6604. Do the prices of hops vary as much from one year to another in that country as they do in England?—Yes.

6605. Is the crop as variable in Bavaria as it is in England?—I do not think it is.

6606. What causes the variation in prices?—In some years speculation, in others the crop not being so good in quality, and general demand.

6607. Would you say generally, that as respects the quantity produced from one year to another, the variations were not so great in Bavaria as in England?—No, they are not so great.

6608. To what do you attribute that?—To the capacity of the soil being superior and better cultivated.

6609. Do

6609. Do they grow generally more or less to an acre than we do?—The lowest growth that I have known in Bavaria in an average year has been 3 cwt. an acre, and the greatest, in some districts, has been 8 cwt.

6610. That is considered a large crop?—That is considered a large crop, and they are very well satisfied if they grow 5 cwt.

6611. Have you visited the hop-growing districts?—The whole of them.

6612. Are they generally small properties in the hands of the proprietors who cultivate them themselves?—Almost always.

6613. Do you know what sort of soil it is in the country selected for the growth of the hop?—In Hersbruck we have a red ferruginous clay, upon a limestone basis, full of fossils.

6614. Is that land that requires draining?—It requires none; there is no expense for drainage there.

6615. They are not so liable to blight?—They are not so liable to blight or mildew, red rust, or mould, or to any of our English hop diseases.

6616. Do you attribute that solely to the superiority of the soil and the climate, or also to their mode of cultivation?—To the mode of cultivation also.

6617. What course do they adopt to prevent it?—They give more air to the plantations; they are not planted so thickly, and when the blight does attack them it is never to so great an extent as it is in our English plantations.

6618. Do you attribute that in a great measure to the hops not being planted so thickly?—In a great measure I do.

6619. Mr. *W. Martin.*] Do you think that this mode being used to their hops gives better ventilation and better access to the sun?—Yes.

6620. *Chairman.*] Have you been told that upon the appearance of blight they cut down a number of poles to prevent the blight spreading?—Yes, I have, and they seem occasionally to do that.

6621. Do they grow hops in any part of Bavaria interspersed with other crops?—Frequently; most small proprietors do so; it is their practice mostly to grow something else besides hops upon the ground; it is in the hands of small holders, and sometimes four or five conspire to grow a small patch. I know one instance where five people conspired and grew three-fourths of an acre of hops, and there are of course intermediate crops there; they grow a certain portion of hops, and turnips, cabbages, and mangold würzel.

6622. Do they upon the same plot of ground upon which they grow hops, in among the hops, grow something else?—Yes; instead of polling at 4 feet 6 inches or 4 feet 9 inches, they then poll at 9 feet apart; 6 and 7 feet are very common.

6623. And they plant something else between?—Yes, excepting always tobacco and potatoes. They are never found planted between; they consider them too exhausting.

6624. Do they expend much money in manure, or not?—It is principally stable manure; I have seen old rags used, and occasionally rape cake.

6625. Generally speaking, there is not much capital expended upon the land?—No, I believe not.

6626. Has not the system of small holdings the effect of discouraging improvements?—Yes, and there is another reason; if a man has five acres of land, and he has five children, if he dies, each child inherits the worth of an acre, and upon the death of the parent, the land is often sold, and comes into the hands of other proprietors.

6627. Do you know how many acres there are in cultivation, in Bavaria?—about 28,000.

6628. Mr. *J. Locke.*] What is the expense of bringing an acre of hops into cultivation up to the time of picking?—Some reckon about 12 *l.*, and some 15 *l.*

6629. *Chairman.*] The land being cultivated by the proprietor and his family, is not it difficult to calculate in money the expense of cultivation?—Yes, because in that case he pays for so little labour.

6630. Mr. *Bass.*] At what do you estimate the produce per acre?—Five hundredweight.

6631. Is that in a full crop year, or a moderate crop year?—A good crop year; it is what I call a full average.

6632. Mr. *Brand.*] Can you give us the items that make up the 12 *l.* an acre?—No, I cannot; that I have got from a different party; I have got it from four different districts, and about one hundred proprietors.

Mr. *H. J. Whitling.*

20 July 1857.

6633. Do you include in the charge for labour, the labour of the proprietor himself?—He reckons that as part of his expenses, and he reckons the interest of the land, which is sometimes purchased at a high price.

6634. What is the rent of the land upon which hops are grown?—I know of a small plot of two acres of hop land that they pay rent for, of which the rent was 6*l.* an acre.

6635. Mr. *Bass.*] With the poles and hops upon it?—With the poles and plants.

6636. That would leave the remainder of the expense of cultivation at 6*l.* an acre?—I am speaking of the value of land if rented.

6637. Mr. *J. Locke.*] Will you give the Committee the mode in which you arrive at that 12*l.*?—I do not see how I can possibly estimate it.

6638. Do you include the rent of the land in that expense?—I include the rent of the land.

6639. How much do you put it at?—It depends upon what he pays; you must tell me what he has paid for the land; they buy it at all prices; from 50*l.* to 150*l.* and even 400*l.* an acre.

6640. What is the average?—The average would be about 150*l.* to 180*l.*

6641. How much per cent. do you allow upon that?—About 3½ to 4 per cent.

6642. That would be about 6*l.* an acre rent?—Yes.

6643. In addition to that what do you allow?—There is the labour.

6644. What do you put that at?—It is impossible for me to make a calculation; I got it from different parties; in this case growers.

6645. What did you get from different parties?—The general average.

6646. What does that gross result include; does it include the rent, the labour, and the poles?—Yes.

6647. And picking?—Not the picking; it includes the manure also; those charges vary from 12*l.* to 15*l.* an acre; the poles last many years, therefore you must take their average cost; I have found that average from practical men who are able to give it.

6648. Do you say that is the expense they put it at annually up to the time of picking?—Yes. I can tell you how I can prove it. They consider that if they do not get a fair average price for their crop of about five cwt., at 3*l.* 10*s.* a cwt., they do not pay the expenses, and some little profit for the interest of the land.

6649. Mr. *Bass.*] The lowest price at which they can produce hops in Bavaria is 3*l.* 10*s.*?—Yes, that average generally rules through the districts of Spalt, Hersbruck, and Hallertau.

6650. Mr. *J. Locke.*] That is the best part?—Yes.

6651. What is it in the other parts?—Much lower; the land is inferior, and they do not mount up to five cwt. an acre.

6652. *Chairman.*] Do they grow as much as three cwt.?—No.

6653. Mr. *Bass.*] To what do you ascribe the superior quality of Bavarian hops?—Owing to the soil and the cultivation they contain more pollen, more lupuline, and more extractive matter, and their keeping quality is superior.

6654. Is the height of the poles a great advantage to the quality of the hop?—I think so.

6655. Is their having single poles, instead of three and four to a hill, an advantage to the hops?—Decidedly.

6656. Is that because they are more exposed to the action of the sun?—Yes, and they also get more air.

6657. You say the fair average growth is five cwt. per acre?—Yes.

6658. What is the most you have ever seen?—The most I have ever seen is 23 cwt. an acre.

6659. Then the crop varies there as here?—Yes, but not often so greatly.

6660. Is the hop plant an indigenous plant upon that soil?—It is.

6661. Mr. *W. Martin.*] Do they grow the vine in that district?—Not in that district.

6662. Have you found the hops coming into competition with the vine?—No; but you find in the valley of the Maine from Bamberg to Wurztsburg and Frankfort the vine and the hop growing side by side.

6663. Would the hop cultivation displace the vine cultivation in order to be much extended?—No, you may increase it to any extent without interfering with the vine cultivation.

6664. *Chairman.*]

J. H. Whitling.
20 July 1857.

6664. *Chairman.*] Do you attribute the superiority of the Bavarian hop in any way to the mode of drying?—The difference between the English and the Bavarian mode of drying is this (and I think that both of them are so far wrong), that the English roast their hops and the Germans stew them. Their draughts are not quick enough, and they have too much vapour hanging about, which is very prejudicial.

6665. Which is the most injurious process to the hop?—I should think the fire.

6666. Mr. *Bass.*] What is the size of poles in Bavaria?—The highest I have measured are 42 feet, but at this height the hops do not house up to the top.

Jovis, 23° die Julii, 1857.

MEMBERS PRESENT.

Mr. Bass.	Mr. Dodson.
Mr. Beach.	Mr. Beresford Hope.
Mr. Booker Blakemore.	Mr. John Locke.
Mr. Brand.	Mr. Wickham Martin.
Sir Edward Dering.	

JOHN GEORGE DODSON, Esq., IN THE CHAIR.

George Darby, Esq., called in; and further Examined.

G. Darby, Esq.
23 July 1857.

6667. *Chairman.*] IS there anything that you wish to add to your former evidence?—If the Committee will allow me a few minutes, I should like to give an explanation upon two points; I think I stated from recollection one thing that was not actually correct. I stated that the hops fell, in three or four months 50 per cent., but I find that they fell, as far as I can judge, 25 per cent. in little more than a fortnight; they continued to fall every month, and in a little more than five months they fell 50 per cent.

6668. Does this statement apply to your own hops?—No; it applies to others. I find that that is about what they fell; that applies to Sussex hops. There was another statement which an honourable Member thought I exaggerated a little about. I stated that I thought there were hundreds of thousands of people employed in the hop gardens. I am able to say that I was under the mark, and I can prove it by figures. There are 50,000 acres of hops in round numbers, and you cannot calculate less than a bin and a half to an acre. That is what I use, and I have inquired of the large hop growers of East Sussex, and they say that I have rather understated it. If you only put it at a bin and a half an acre, you must calculate four persons to each bin, so that the 50,000 acres will give you 300,000 people employed in simply picking, without putting in other manual labour of any kind, the driers and the pole pullers, measurers, bagging hops, &c., so that in the simple operation of picking, I will venture to say, and it will be borne out by practical men, there are at least 300,000 people employed; and therefore, though I stated it from my general knowledge of the subject, I certainly think that I have not, in the least degree, overstated what is the truth.

6669. That is at a particular time of year?—Of course.

6670. Mr. *Bass.*] With regard to the fall prices, after what you have stated wolud you be surprised to hear that there had been a rise in that year?—I should be most uncommonly surprised, because I must have been most egregiously duped if that were the case. I know that hops sold at 20*l.* at

G. Darby, Esq.

23 July 1857.

Robertsbridge fair, and in a fortnight those hops were worth only 15 *l.* I shall be exceedingly surprised if anybody else in the Borough, conversant with Sussex hops, should bring their books to show that the hops of 1854 and 1855 rose after Robertsbridge fair.

6671. With regard to your calculation of the number of people employed, you formed it, I apprehend, upon the number of women and children you require to pick a bin?—I must take it in that way.

6672. Is not your calculation formed upon the presumption that every ground is picked at the same moment, and not that a person transfers himself from one parish to another, according to the exigencies of the case?—Practically everybody knows if they were to wait for the pickers till their neighbours had done, you would not give much for their hops. I engage my pickers before the hop picking. Suppose I have Jones's, which come in early, and you have Grapes and Colegates, should I wait till a man has picked his Colegates to pick my Jones's; I should be ruined if I did so.

6673. Do I rightly understand you to inform the Committee that, according to the best of your information, at one and the same moment 300,000 women and children are employed in picking hops?—Yes, I believe, most unquestionably, that 300,000 persons, male and female, are so employed. There is one other thing which I stated about what the actual manual labour which I said I must turn it into weekly wages. I have got a statement from my own books for about 12 months, and I have got another from a person who is thoroughly conversant with the thing, he has put rather more things in than I have, though I cannot strike any of them out. His calculation exactly agrees with Mr. Cutbush; he makes it 15 *l.* per acre; I have made it only 12 *l.* At 15 *l.* per acre, at 12 *s.* a week wages, it would just be what Mr. Cutbush said, two men to an acre; and, therefore, taking four men to an ordinary farm, there are employed upon 100 acres 50 men instead of four; and, according to my calculation, there would be employed about 33 or 34 upon 100 acres.

6674. Taking the average cultivation of hop land, you would require about 25,000 men?—Yes; according to Mr. Cutbush's calculation; according to mine it would not be so much.

6675. Does that calculation with regard to the labour employed in the cultivation of hops include every sort of manual labour?—The 15 *l.* an acre includes everything.

6676. Picking and all?—Of course.

6677. The total expense would be 15 *l.* an acre, comprising all the labour upon the hops?—That is in money; but if you put that into men it will not represent the true state of the case; and therefore I said, "if you represent the employment of people by the wages it would totally mislead the Committee, because you could not do that work by men. The number employed is 300,000, including children from nine years old, and people of from 70 or 80, who are capable of that kind of employment, and who can add 4 *l.* or 5 *l.* to the earnings of the head of the family in each year, which they could not earn except through the means of some easy work of that kind; and therefore, to take the money expended as a test of the number of people employed, would be a most fallacious way, in my opinion, of putting it to the Committee.

6678. *Chairman.*] And you wish to correct your statement with regard to the price of Sussex hops?—I was asked if I did not know that Sussex hops were sold at Robertsbridge fair at 20 *l.*; I said I knew, from my own personal knowledge that there had been a case, and I said afterwards I believe that those hops had fell 50 per cent. in three or four months. I have now looked into it, and so far as I myself was concerned I must correct that statement, they fell in little more than a fortnight 25 per cent., and they fell within about six months 50 per cent., and if any body says that they rose, all I can say is, that it must be a particular case.

6679. Can you tell the Committee what the average price of Sussex hops was in that year?—I cannot tell; because I have not gone through to the end of the year; I got rid of all mine early, and therefore it became a matter of no interest to me.

Mr. *Henry John Whitling*, called in; and further Examined.

6680. *Chairman.*] HAVE you anything further to say to the Committee with reference to the cultivation of hops in Bavaria?—I do not think I mentioned that as a manure they sometimes made use of the hop-bine.

6681. So that they have restored to the soil a great portion of what was taken from it?—Yes; it was recommended by the great German chemist, Liebieg: he tells us that it contains a great deal of muriate of potash, which is an alkali found in all soils; and I believe it is only on account of its fibrous nature, and the impatience of the peasants who do not like to wait for its proper decomposition, that it has not been in more general use in the country.

6682. Mr. *W. Martin.*] Do not they do the same with respect to the vines, manuring by vine cuttings?—Yes; and that was especially at his suggestion too. The cultivation of the vine and the hop is very similar. The peasant who understands one can easily undertake the other; manuring with the "cuttings" is common to both.

6683. Sir *Edward Dering.*] Do they bury them?—They bury them; and sometimes they allow them to decompose in stable-yards.

6684. Is it a year and a half before they come out?—About two years.

6685. In what state do they come out?—They come out almost like dark stable manure; but when well prepared it is found to be a very forcing manure.

6686. Do you know the quantity that they employ?—I know that they put it on precisely as if it were stable manure; they manure in the autumn, and give a top-dressing in the spring; but the hop-bine manure is generally put on in the autumn; and I have mostly seen it mixed with other manure.

6687. *Chairman.*] What are the other principal countries where hops are grown, and what is the number of acres under cultivation in each?—For Bavaria, I think, I have already given 28,000 acres; for Bohemia, including Saaz, Falkenau, Auscha, the three principal districts contain about 27,000 acres. In Wurtemburg we have 5,000 acres; in Baden, that is principally in the Schwetzingen district, we have 4,800, and in Prussia we have about 10,000; and we may take the remaining German districts, good and bad, at about 15,000.

6688. Can you tell the Committee the average growth of those districts?—I have found the average, taken in those countries in the same way as they take it in Bavaria, something between three and five cwt. an acre.

6689. Mr. *Brand.*] How did you obtain those figures?—I obtained them from the growers, from the collectors, from the country magistrates, from the merchants, and from my own observation.

6690. Are there no official statistical returns in those countries?—There are certain unofficial statistics published by a M. Von Hermann; but it is said there are so many inaccuracies in it, and such omissions with regard to the increase of the plantations within the last 10 years, that it is not considered to be a very reliable book.

6691. Is he a Bavarian?—I believe so.

6692. Can you assure the Committee as to the accuracy of your figures?—I have gone through them carefully, and these are the figures which I have ascertained, during 13 years residence in the country, and after much pains bestowed upon the subject.

6693. Have you correspondents in all those countries which you have spoken of?—In all of them; and I have confirmed and corroborated that statement as far as it was possible. I should like to add, for outlying plantations in patches, and unconnected with any named districts, about 4,000 acres.

6694. *Chairman.*] What is the general nature of the soil in those districts?—It varies. The Hersbruck soil is a stiffish ferruginous clay, on a limestone basis; the Spalt is a lighter soil, very rich, not unmixed with sand, here and there silicious.

6695. Will you state what are the soils and that portion of those districts which grow the best sort of hops?—Spalt, and Hallertau, and Hersbruck, for Bavaria, and Saaz for Bohemia. Hallertau on the levels is more alluvial, and on the higher lands very similar to the Hersbruck. The rest is lighter and more sandy, not unmixed with flint. Schwetzingen, close upon the Rhine, is alluvial,

Mr. *H. J. Whitling.*

23 July 1857.

alluvial, with more or less sand, according to its proximity to the river. I have a map here in which the districts are tinted (*producing the same; samples of Spalt soils also offered.*)

6696. What capability of extension is there in these districts?—I think the capability of extension is illimitable. I do not think there are any limits to it.

6697. Are you prepared to say that the soil which grows the best class of hops is capable of extension?—Spalt (not the Spalt "Stadt," but the Spalt "Land" (country) would admit of extension; Hersbruck also and the Hallertau would admit of extension; and besides that, the valley of the Maine, from Bamberg on to Würzburg, for a distance of 50 miles, would grow hops along nearly its whole length; they are already cultivated there, but in small patches. I could also mention other localities.

6698. Would those hops be equal in quality to the best class of Bavarians that are now imported?—I think they would come perhaps under the denomination of the second quality of hops till they arrive at full cultivation.

6699. Do you think there is any great capability of growing any more of the highest class of Bavarian hops?—Certainly; they are increasing, and have been increasing for years, If the Committee wish to know the fact, I can state, that within the last seven years they have increased upon the whole at least 20 per cent.

9700. Is that in consequence of the increased consumption abroad or at home, or both?—It is in consequence, first, of the increased consumption in the country, and then, of the increased demand for exportation.

6701. Has the demand for exportation been principally to this country?—No; a great deal to Norway and Sweden, and also to France; the exportation of late years has increased very much to France.

6702. What is the tenure of the ground?—It is chiefly in the hands of peasant proprietors, and, though purchased, much of it is subject, besides the taxes to Government, which are not very heavy, to certain "abgaben" or dues payable to the lords patrimonial. They are rendered both in "money" and in "kind." Many of these which custom had made prescriptive were abolished in the revolution of 1848-9, so that the burdens on land are now not so very great. One difficulty of getting capital invested by way of improvement is occasioned by the operation of the "Code Napoleon," by which, upon the death of a proprietor, the land is divided amongst his children, and the capital that should work it, is distributed. Another is, the uncertainty of tenancy, the impossibility, I may say, of obtaining a secure lease; because, should I take a lease of ground and the lessor die, if the family find it necessary or expedient to sell their property, my lease is determinable at once, and I have little or no security either for my outlay, or for any further enjoyment of it. It merges in the purchase.

6703. Is the system of cultivation followed over this district one in which there is a deal of manual labour, with very little expenditure of capital?—It is.

6704. May we take from five to six hundredweight as the average produce per acre?—I would rather say from four to five; it is sometimes less.

6705. Sir *Edward Dering.*] Have you been much among the hop districts?—Very much; I lived in the country nearly 13 years.

6706. Have you been in the habit of going through the hop districts during all that period?—With some exception. I have been to Spalt but three times, to Saaz twice.

6707. Mr. *Brand.*] In fact, your residence has been for purposes connected with hops?—Yes, as soon as I could get into the trade.

6708. Has the internal demand for hops increased in those districts?—Very much.

6709. Are the population in the habit of drinking more beer than they used to drink?—I think so; and that seems to be the opinion of the brewers also, both the country brewers and the large town brewers.

6710. Is it within your knowledge that the consumption of beer has increased throughout Germany?—Yes, and its price is carefully regulated monthly, by the police.

6711. Is it imported to France also?—Yes; they are beginning to import a great deal of Bavarian beer into France.

6712. *Chairman.*] Is the Bavarian beer which is generally made, beer that will bear export?—No; if it is to undergo a sea passage, it must be brewed expressly.

6713. Will it bear the land transit to France?—Yes, it will bear the land transit to France. But, generally speaking, they do not send that; it is mostly a beer also brewed for transit.

6714. Have you ever imported any of the Bavarian beer?—Yes, I have, as an experiment.

6715. Was that brewed expressly?—It was brewed expressly, I believe; but I did not go much into these matters. They have two other kinds of beer, of which the King is the principal brewer. They call it the Salvador and the Bock. These beers will bear transit. The Bock is very strong; they brew single and double Bock, and their flavour is delicious. "Bock" is the German word for "goat," and this beer is thus distinguished in allusion to its property of butting a man down.

6716. Those are high-priced beers?—Those are high-priced beers.

6717. Those are not common beers?—No; the King brews them only for a short time in the autumn. They are brewed also by others, but not so good.

6718. Mr. *Brand.*] Are you prepared to say what is the cause of the ordinary Bavarian beer not standing the sea passage?—I am not prepared to say that.

6719. Sir *Edward Dering.*] Is it very highly hopped?—Very highly hopped indeed. It might be interesting to the Committee to know the quantities of hops that the Bavarian brewers, with whom I have spoken upon the subject, use in proportion to malt. For the winter beer they use from three to four pounds, and for the summer beer six pounds to the schäffel of malt. The schäffel equals about 6 ⅛ bushels. An approximate proportion is, that 100 schäffels is as nearly as possible equal to 612 English bushels.

6720. *Chairman.*] Are not the preserving qualities of Bavarian hops equal to the preserving qualities of other hops?—More so; they are superior; but I think they do not put enough malt into the Bavarian beer.

6721. Mr. *W. Martin.*] Is not it more fermented?—A good deal of it is so, but I do not understand the process of fermentation sufficiently to explain to the Committee.

6722. *Chairman.*] Can you speak as to the different sorts of hops grown in Germany?—In the country they have only two general distinctions. There is the early hop, which is rather a lighter hop, and the late hop, which is a heavy hop, those are the two different divisions. Of Jones's, and Grapes, and Goldings, they know nothing.

6723. At what time of year is the early hop gathered?—In September.

6724. And the later kind?—That is towards the end of September and the beginning of October: it depends upon the season.

6725. Which is the best hop?—The later hop.

6726. Is that the hop imported for consumption in England?—Both are imported.

6727. Are those the only two kinds of hops grown in Bavaria?—Those are the distinctive features as accepted in the country.

6728. What is the difference on the average in the price of those two kinds of hops?—From 1 *l.* to 30 *s.* the cwt., with the exception always of the Spalt Stadt hop, which is like our East Kent, and fetches a very high price. It is always sold under the town seal, and every bale should be accompanied with a seal and a weight certificate; if it is not accompanied with those, the probability is that it is not a genuine bale. The Schwetzingen are however in most respects equal, and are often sold for Spalt, where the hops are not understood, and the seal and certificate are not demanded by a purchaser.

6729. When you speak of two sorts of hop, are you speaking of all the country?—I am speaking of the hops grown throughout the country.

6730. Could you tell what proportions are grown of those two kinds of hops?—I am not prepared to say that, but a great portion of the Hersbruck districts would be the lighter but powerful hop. In the Hallertau district the greater proportion would be the heavy hop. Spalt are mostly heavy hops.

6731. Have you any observations to make with respect to the mode of picking, and drying, and packing?—There is this very great and important distinction between their picking and our own: our hops are always picked in the field; theirs are cut from the poles and dragged about into stables, and outhouses, cowhouses, lofts, cellars, kitchens, and bedrooms, and maltreated in every possible way before they get them into the kilns. In Saaz the picking is in want of still more improvement.

Mr. H. J. Whitling.

23 July 1857.

6732. Are they sent to the towns to be dried?—They are taken to the merchants; the peasants never dry the hops in the kiln, but spread them out on floors of lofts.

6733. Sir *Edward Dering*.] What description of kiln are they dried in by the merchant?—They have some English oast-houses over there, but they are mostly dried upon the Belgian principle, in layers, with a stove at the side, and the draught is run through. The hops are placed in layers, but the draught is not quick enough, and the humidity is not carried off so rapidly as it should be, and the hops, as I had occasion to say on Monday, are rather stewed than dried; the fire is not near enough, but the heat is carried through by flues. They are packed by presses.

6734. What is an acre of land sold for in Bavaria?—The highest price I have ever known an acre of hop land to be sold for was 340 *l.*; I have heard there has been a higher price, but I never knew it, and the lowest price I know of was 148 *l.* for superior land.

6735. Mr. *W. Martin*.] Is the competition for land very extreme in that country?—Yes, for this reason, that every peasant who understands cultivation will at almost any risk occupy land, and at any personal sacrifice, he will, if possible, buy it.

6736. Is that the case in France and Belgium?—In Belgium I believe it is; in France I do not know; but in Bavaria it is essentially so.

6737. *Chairman*.] Is not the land you are speaking of some of the best hop land in Bavaria?—Some of the best.

6738. Sir *Edward Dering*.] Are you speaking exclusively of hop land?—I am speaking exclusively of hop land; for other land you pay about 25 *l.*, and even much less.

6739. *Chairman*.] Has that land a peculiar capability for growing hops?—Yes; and it is both poled and planted with hops. You may get good hop land lying out of the districts for 70 *l.* or 80 *l.*, and I believe under 50 *l.* But for land in the chief districts you must pay a high price.

6740. Mr. *W. Martin*.] Do those prices include the poles?—Yes, mostly, and the plants also.

6741. In fact they include the hops planted and poled?—Yes; with us hop poles are an expensive article; the shorter poles cost 15 *l.* per 1,000, and our greater lengths cost 25 *l.*

6742. Mr. *Brand*.] What lengths are you speaking of?—The shorter lengths are from 15 to 25 feet, and the greater lengths from 24 or 25 feet to upwards of 40 feet.

6743. *Chairman*.] Can you state at all what proportion of the crop in Bavaria is consumed in the country?—I have an idea; but I should hardly like to risk a statement to the Committee.

6744. Then, you cannot give an idea of what proportion of the hops is raised for export?—No, not at this moment. I ascertained it once. For the season of 1855 our crop was about 228,000 cwt., and of that 100,000 cwt. was for exportation.

6745. Are you sure that your calculation in that year was correct?—It was so as far as we could possibly ascertain it from the great merchants and proprietors in the districts.

6746. Mr. *Brand*.] Can you state what countries that export was made to?—The chief export trade was to Sweden, Norway, Denmark, St. Petersburgh, France and London, and some little went to Australia and to Spain.

6747. Have you placed them in the order of their amount?—No; I am speaking now merely from recollection, without regard to any specific order.

6748. *Chairman*.] What portion of this land in the different districts produces hops of a class such as would be used by English brewers?—Under proper treatment two-thirds of it; that I can safely state, always supposing that the treatment satisfied the English brewers, whose tastes greatly vary.

6749. Are there any foreign hops, except the best Bavarian hops, that would bear comparison with the best English hops as to quality?—The best Bohemians would bear a comparison; they are superior, in my opinion, to any East Kent hop, because they contain stronger pollen and more lupuline, more extractive matter and more powerful essential oil.

6750. Have not you had considerable complaints of the management of the hops in Bavaria?—Yes. That was in the season of 1854 especially, and when they

they ransacked the old beds, emptied them of the hops, oasted them, sulphured them, and sent them over here, I wrote a pamphlet exposing the frauds.

6751. Do you find that it is a matter of objection by the English merchant and brewer, that in buying foreign hops, they have not the same opportunity of knowing where they come from, and of tracing them, as they have of the English hops?—They should always ask for a guarantee as to the district where they are grown. But the Bavarian hops are not understood sufficiently by English brewers, because I have placed them sometimes before them, and they have chosen the inferior goods, and then I am obliged to tell them their mistake. I suggested the guarantee, in consequence of the frauds in the season of 1854. They are often cooked up for the eye. The chief objection of the brewers, is to the careless and often slovenly picking, which, doubtless, admits of great improvement.

6752. Have you any complaint to make of the manner in which the Customs duty is levied?—The first complaint that we feel we have to make is of its excessive amount, considering that we have so many freight expenses in addition, and one which also ought to be mentioned; we are obliged to pay for twice packing, because we must allow the peasant's packing, and must get fresh cloth for the English transit, which makes the expenses heavy. It is regarded of course, simply as a protective duty, and it operates heavily against the trade. It is felt the more oppressively, because the English tariff does not show any class of goods whatever, under similar circumstances of production, upon which so heavy a duty is chargeable.

6753. Is there any duty on hops imported into Bavaria?—Yes; there is a trifling duty on hops which come in from Bohemia. They pay a transit duty of, I believe, 4 *s.* or 5 *s.* per bale; but mine came over Hamburg.

6754. Which way do the Bohemian hops which are imported into this country come?—They come down the Elbe. They do not go through Bavaria unless the Elbe is frozen; and in that case they come through Bavaria for the sake of quicker transit; they come down to Ostend or Antwerp, and sometimes to Havre. By the first-named route, the transit duty is avoided.

6755. Sir *Edward Dering.*] Is there any difficulty in an English hop merchant establishing himself in Bavaria?—There is always the jealousy of foreigners in the first place.

6756. Is not it the case that no foreigner can set up in trade as a hop merchant in Bavaria without a certificate?—For any trade he must have what they call a concession from the Government, or act through others.

6757. How can they get one of those certificates?—By applying to the Government.

6758. When did you get the certificate?—I had already tacit permission in the season of 1854.

6759. Were not you there since 1845?—I have been there since 1844.

6760. Were not you engaged in the hop trade previously to that?—Not previously to 1845. I afterwards sent over hops; but I was not acting so overtly as an agent. But in this case I acted expressly for one house, till I was obliged to decline further connexion, but I had tacit permission to purchase and act as agent.

6761. Should you have found a difficulty in buying and selling without that permission?—I cannot say that, because I was well known, and acted also with others there.

6762. You got that in 1854?—I had already such permission in the season of 1854.

6763. Are you still a hop merchant there?—I have still an establishment there, carried on by friends with whom I co-operate. I have also correspondents there, and carry on business with several houses.

6764. Do you no longer carry on business as an agent?—No, and I never will, in the same way again. I carry on business on my own account with various friends over there, who live in the country, and who are both growers and merchants. I therefore am enabled to supply the brewers direct from the plantations.

6765. Mr. *Bass.*] Did I rightly understand you to state to the Committee that there is a probability of the importation of Bavarian beer into this country if the duty is taken off?—I do not think I stated that. It may not be impossible; but I should think it very unlikely.

Mr. *H. J. Whitling.*

23 July 1857.

6766. Do not they brew beer especially for exportation?—They must brew especially for exportation.

6767. Are you aware that they have a trade for exportation?—Yes.

6768. To what quarter?—They send some to Sweden and some to France, and to Norway, and they have a trade with Hamburgh and the northern ports.

6769. Are you aware that they attempt to compete with English beer in the great markets of Australia and India?—I think that may be their intention; but whether they have done so I am not prepared to say.

6770. Are you aware whether they have ever attempted to compete with the English brewers in neutral markets?—I have reason to believe that they have sent beer to Australia; but I do not like to speak positively about it.

6771. Are you aware of the result?—No, I am not.

6772. Are you aware whether the English exportation to Australia has been affected by competition from Bavaria and elsewhere?—No, I am not, but I should think it unlikely.

6773. Are you aware of any neutral country, where the duties, being the same upon English and upon foreign beer, the foreign beer has affected the predominance of the English import?—I am not aware of that. I do not know enough of the trade, but judging from quality, I should think it impossible.

6774. Is not the ordinary beer of Bavaria quite incapable of exportation?—Yes, quite; it would not bear the transit

6775. Does not it depend upon being kept in the ice till the last moment of drinking?—Yes; they keep them in what they call felsenkeller (stone cellars), in which they keep them cool.

6776. Surrounded with ice?—Sometimes surrounded with ice.

6777. Is not that the invariable practice?—Not invariably; in some cases they have very deep cellars where they do not use ice.

6778. Have you seen cellars belonging to any considerable brewers without ice in them?—I have seen some in Nuremberg, and also some in Erlangen, and one in Munich.

6779. Could you tell whose brewery it was that you have seen in Munich without ice?—I do not recollect, I have been in so many during my residence in Bavaria.

6780. Are you aware that the principal brewers in Munich have cellars in which their beer is kept throughout the season till it is wanted?—Yes; and I have seen ice in some of their cellars; but I have also seen other cellars in which no ice has been used; it may be very likely as a general rule, but there are also exceptional cases.

6781. Mr. *Brand.*] Are there any official returns of the export of Bavarian beer?—I never saw any, but it is right that I should state I never inquired much about it; my attention has been chiefly directed to the hop trade.

6782. *Chairman.*] Have you ever seen any English hops in Bavaria?—I have seen English hops in Bavaria.

6783. Were they imported in consequence of the failure of the crop of Bavaria?—They were imported specially by way of experiment, and the police forbade their being used, because they were sulphured.

6784. Mr. *Bass.*] In what year was that?—That was in 1847; they were three bales we had sent over.

6785. Sir *Edward Dering.*] What description of beer was that which was exported from Bavaria to Sweden and Norway, and other places?—It was what is called generally Bavarian beer, but it was brewed especially for transit.

6786. Where does the Bock beer come from?—The best Bock is brewed in Munich.

6787. Has any of that been exported?—Yes, some has gone to Sweden.

6788. There is no doubt about its keeping?—No, it keeps very well. I took some pains to ascertain that. It went from the King's brewery.

6789. Mr. *Bass.*] It goes into a cold climate?—Yes, it was sent away in October to Sweden.

6790. Probably it was drunk before May?—No doubt of that.

6791. So that it was not tried by the hot weather?—No.

6792. Sir *Edward Dering.*] Has that beer more or less flavour than the common beer of Bavaria?—It is sweeter, and has more of the strong flavour of the malt in it.

6793. *Chairman.*] When the importation of Bavarian hops into this country first

first began, was not there a prejudice against them?—Yes, and it exists still with many brewers; but we shall live that down.

6794. Do not you think that the objection to English hops in Bavaria may also be a prejudice which will wear off in the same way?—No, they complain that they are so much lighter that they do not like them. But, above all, the police step in, and if they find sulphured hops upon the premises of a brewer he has to pay a heavy penalty, and the goods are liable to instant confiscation. Sulphuring is only permitted to hops for England.

6795. Mr. *Brand.*] Is there an import duty upon hops in Bavaria?—Yes; it is not a great duty; they pay 4 *s.* or 5 *s.* per bale. They charge it per bale, I believe, as they do the transit duty. As a trade I never imported any English hops into Bavaria.

6796. Mr. *W. Martin.*] By sulphured hops, do you mean hops in which sulphur had been used while they were growing, or hops to which it had been used in the process of drying?—I mean hops fumigated with sulphur during the oasting process.

6797. Did I rightly understand you to say that there is plenty of land in Bavaria capable of growing hops?—Yes.

6798. If the Custom duty were removed, would not it become a mere question of price, whether Bavarian hops would come in or not?—Yes, if of fine quality.

6799. Do you think that the prices that rule in this country would be a sufficient inducement to them to export, if both the Customs and Excise duty were removed?—I think not to any great extent, because I believe that the chief competition would be between the finer growths in England and the finer growths in Bavaria. I think that only the finer growths would come in, and for those there is so great a demand in the country itself, and in different parts of the Continent, that I think the export would be limited.

6800. Are they such as would be imported by the grower for superior processes?—Those who are aware of the quality of the hops, and who have used them, always want them again; and we find, in the case of even seasons like this, that those who have used the finer Bavarian hops formerly, will have them even at high prices. I sold those at 2 *l.* and 3 *l.* above the price of East Kent at the beginning of the season.

6801. Is it your professional opinion as a merchant that there is generally that difference between the Bavarian and East Kent hops?—One method we had of testing it was by the hydrometer. We took equal weights of the various kinds of hops, and boiled them in certain specific quantities of distilled water. The different extracts and the distilled water were then gauged by the hydrometer at a certain temperature, and their gravity was ascertained. We then checked that by the test of some chemists, and, among others, of I believe Liebig, the great German chemist. Kent hops, Sussex hops, Worcester hops, and likewise Bavarian, were tested as far as necessary; and it is thus I gather what I have stated to the Committee.

6802. What was the result of your processes?—We found, and it was afterwards corroborated by the chemists, that they varied from 12 to 17 per cent. I am speaking of the general average of the best English growth and the best Bavarians. The test of the "copper" has confirmed this, and even more.

6803. How did the Bavarian stand with regard to the East Kent?—Saaz stood the highest in this manipulation, then Spalt, Hersbruck, and East Kent.

6804. Were there any Bavarian hops placed below East Kent?—We had some which were lighter, but they are known to be the lightest grown in Europe.

6805. Is the specific gravity a complete test of the relative value of the hops?—No.

6806. Is the bitter principle of such a nature as to increase the specific gravity?—No; and hence the necessity of going to a chemist for a chemical analysis.

6807. You had an analysis, as well as the comparison you have given?—We had the analysis made by three different chemists, and the result of the analyses is what I gave before, that there is a greater amount of pollen and of the essential oil likewise; I have not one of the analyses at present by me.

6808. *Chairman.*] Could you furnish a copy of that analysis to the Committee?—I think I could get it; but it was made several years ago.

Mr. *H. J. Whitling.*

23 July 1857.

6809. Mr. *W. Martin.*] Could you also furnish the Committee with a statement of the relative specific gravities of the various kinds of hops?—I will endeavour to do it.

6810. Mr. *Bass.*] Did those chemists affect to be able to give you any test by which you could determine the relative quantity of the fine odour and flavour of the various kinds of hops?—I must confess I was a little surprised, and perhaps disappointed, when I heard even Mr. Liebig had said, "it is a very difficult thing to get at." But I am no chemist.

6811. That is to say, he could not do it?—He did not, as I heard, seem himself quite satisfied with the result.

6812. Do you imagine that the relative quantity of the fine odour which is so much prized in the hops has anything to do with the specific gravity of the extract?—I think so, but it seems difficult to determine it.

6813. Mr. *W. Martin.*] Would not that have rather a tendency to lower the specific gravity?—Yes, I should think so; but I cannot speak on this point, certainly.

6814. Do you know which of the ingredients is supposed to yield the aroma, whether it is the essential oil?—For an answer to that question I will refer to the analysis, which I think will show everything to the satisfaction of the Committee.

6815. Mr. *Bass.*] Did the experiments go to show the best way of retaining that in the beer?—No, I am not aware that they did; I do not remember that they did.

6816. What was the object of that course of experiments?—It was merely to ascertain the average potency of the different sorts of hops.

6817. For what?—For the purposes of the brewers.

6818. Do you mean with regard to the bitter, or with regard to the fragrance?—It was especially with regard to the weight of hops necessary to be used, because I found in sending over hops some years ago that one brewer who tried them said, "We want 7 lbs. of East Kent hops to do what we can do with 4 ½ lbs. of the Bavarians you sent me over;" and I wanted to ascertain how far that could be corroborated by analysis.

6819. *Chairman.*] Are you speaking of the bitter quality, which is the quality which preserves the beer?—I presume it would be the general power of the hop.

6820. It does not include those other articles which go to make up the flavour or the aroma?—No, I think not expressly.

6821. Mr. *Bass.*] Is there any authority sufficient to enable us to conclude that it is the bitter quality of the hops alone that has a preservative tendency?—I am not aware that there is; I should think the best authority would be the test of the copper, but it seems to be a vexed question.

6822. *Chairman.*] Have you any further statement that you wish to make to the Committee?—I should like, in order to make the information which I have had the honour to offer to the Committee as complete as possible, to make a statement as to the prices of labour. In the hop plantations in Bavaria the labourer gets from 1 *s.* 2 *d.* to 1 *s.* 4 *d.* a day without food, and from 6 *d.* to 8 *d.* a day with food. Hop pickers get from 4 *d.* to 6 *d.* a day with food, lodging, and beer. The general farm wages are lower than these.

6823. What do the women and children employed in hop picking get?—They get the half those wages.

6824. Do I rightly understand you to say that the greater portion of the hops of Bavaria were in the hands of peasant proprietors, who cultivate their own land?—Yes; others, above that grade, also grow hops; these always hire labour; the former frequently assist each other, but they still hire labour occasionally.

6825. Have you any further statement to make to the Committee?—With regard to the number of poles upon an acre, I will confine myself to two extreme numbers which I have counted on a so-called acre of ground; the least number of poles which I counted upon an acre was 1,420, and the greatest was 2,236.

6826. Sir *Edward Dering.*] How many poles were there to the hill?—We have no hills; we have ridges only.

Mr. *Thomas Waterman*, called in; and Examined.

6827. *Chairman.*] I BELIEVE you are a Hop Merchant?—Yes.

6828. Do you deal both in English and foreign hops?—Yes.

6829. Have your dealings in foreign hops increased within the last 10 years?—We did very little in them till 1853 or 1854.

6830. What foreign hops do you import?—We confine ourselves to Bavarian and Bohemian.

6831. Have you any dealings in Belgian hops?—No, none whatever.

6832. Have you ever had any dealings in American hops?—We have had a few consignments in 1854, but to a very small extent.

6833. What class of English hops did the American hops compare with?—I should say that the American hops would never come into use in England for brewing purposes, on account of the flavour which arises pretty much from the soil on which they grow. I made an experiment with them upon my kilns in Kent, to see if I could destroy the flavour, but it is impossible to do so by any sort of process whatever; it retains the same flavour, and we cannot get rid of it. I do not believe that they will ever be able to come into use.

6834. It is a defect in the hop itself, which no peculiar management can get rid of it?—Just so.

6835. Mr. *Brand.*] Does it arise from the manner of managing the hops?—No, I believe it is in the soil; it is peculiar to American hops.

6836. *Chairman.*] Do you know from what part of the United States those hops came?—No, I cannot say.

6837. Were they shipped from Boston, or from New York?—The few that we had were shipped from New York.

6838. At what prices did they come?—They were sent to us at 12*l.* a cwt., but they were sold at something like 6*l.* or 7*l.*; they were principally consigned to shippers, who had made advances upon them, and they said they must sell them at any price they would fetch. They were determined to have them sold to get the advances which they had made upon them; and I think that was pretty much the case with all the American hops that have come into this country.

6839. Mr. *W. Martin.*] Is the peculiar flavour, of which you have spoken common to all American hops?—Yes; if I had a sample lying in my counting-house I should find it out when I came into the house, the odour is so strong.

6840. Have you heard that a similar result takes place with the flavour of European Grapes when they are grown in America?—I never heard of it.

6841. *Chairman.*] Were not these hops introduced when the duty was reduced to 1*l.*?—Yes; and there was a considerable loss upon them to the consigner.

6842. Do you think that the quality of American hops is so inferior that they will never be used as long as we have any others?—I am quite satisfied that they will never come into competition with any others that we have.

6843. Sir *Edward Dering.*] Except under very extreme prices?—Yes.

6844. Mr. *W. Martin.*] Have you ever heard of English hops going to America?—Not that I am aware of. I have never sent any, and have had no orders for any to go there in my own experience.

6845. *Chairman.*] With respect to Bavarian hops, do you consider that the Bavarian hops are superior to the East Kent hops?—I think that the best Bavarian hops are far superior to any that we can grow in England.

6846. Mr. *Bass.*] Are they superior to any that we ever did grow in England formerly?—I think that they are superior to any that we ever did grow formerly.

6847. *Chairman.*] Do you attribute that to the nature of the hops or to anything in the management of them?—It is in the soil and climate, which are so congenial for hop growing, and the land is so suitable to them, and the way in which they cultivate them is so superior.

6848. What is their mode of cultivation?—They have them very slightly upon the land; I should say from 5 feet by 6, to 6 feet by 6. They are not all alike as regards the distance; and they grow them upon one pole, and the pole is of a greater length than ours, so that of course every hop comes to

Mr. *T. Waterman.*

23 July 1857.

maturity by being able to get the air and the sun; they are not too close together, and it is perfectly clear that the air and the sun can pass through the whole of them, and every hop comes to maturity.

6849. Mr. *Bass.*] What is the length of the poles upon the average?—They are from 25 to 42 and 43 and even 46 feet long, in some instances.

6850. Have you referred to your memorandum to see what was the length of the pole upon which you lost your wager?—Yes; it was 39 feet 11 ½ inches long.

6851. Are there a large portion of the poles approaching that length?—Yes; and in Bohemia there are very long poles. There is a district in Bohemia where they grow an exceedingly coarse hop, which is grown upon a very long pole; they go to the top of it and branch off; the hop itself is from six to seven inches long, and there are three or four green leaves coming out from the hop.

6852. Have you ever seen poles higher than 37 feet in Bohemia, such as are seen in Bavaria?—In Bohemia there are longer poles than there are in Bavaria.

6853. How much longer are they?—From one to two feet.

6854. *Chairman.*] Are these coarse Bohemian hops ever imported into England?—They are bought by parties who employ women to pick them to pieces, and mix them with other classes of hops, so that they are not seen; the leaves being pulled off them, and the length of the sprig being cut off, they are mixed up with better classes of hops.

6855. Does that class of hops do to use alone, or are they mixed with others?—They are much cheaper than the others, and no doubt they have been imported.

6856. Mr. *Bass.*] Did I rightly understand you to say that the Bavarians are very superior to anything you have known grown in England?—Yes.

6857. Do you have a proof of that by the sales that you are able to make?—Yes, we have many brewers, even in Kent, who give us orders, and who will not brew their stock beer till we are able to furnish them with the best Bavarians to mix with the English hops.

6858. Have you sold a considerable quantity of Bavarian hops this year, since the crop of last year?—Yes, principally since the crop of last year.

6859. Have you been able to compete with the prices of the finest quality of English hops in the price at which you have been able to sell Bavarians?—We can get a much higher price for the better class of Bavarian hops than we can for any English hops.

6860. Can you tell the Committee what, within the last three months, has been the highest price paid for the best run of English hops?—The price of the best run of English hops has been from 84 *s.* to 90 *s.* and 95 *s.* per hundredweight.

6861. Within that period have you sold a great many Bavarian hops?—I have; and I could have sold a great many more if I could have got them in time.

6862. Will you tell the Committee at what price you have sold them?—At 7 *l.* 10 *s.*, and I had offers for more at the same price.

6863. Have you not sold many Bavarian hops below that price?—I have sold very few under 6 *l.* 6 *s.*, but they were inferior ones; I do not think that I have sold 50 bales under 7 *l.* 7 *s.* a cwt.; we had a few inferior ones that we selected out of our purchases, and of course they were sold at a lower price than the choice ones.

6864. Were you asked by your customers for Bavarian hops last autumn; in October and November?—I can hardly call to mind.

6865. Do you know what were the prices of the finest Bavarian hops in October of last year?—I do not think we had any in October last.

6866. Can you tell the Committee why you had not?—I had no certificate to act for myself as a merchant, or else I should have done so.

6867. You cannot tell the Committee whether the prices were such as would not enable those hops to come into the market?—I have not the particulars of 1855; I have it in my books.

6868. Do you recollect whether it is the fact that last Christmas the finest Bavarian hops could not be imported into this country under from 8 *l.* to 9 *l.*?—I have nothing respecting 1856.

6869. At what time did your business in Bavarian hops begin this last season?—Not till February; we imported the first in February 1857.

6870. Why did you not buy before?—Because we had an idea that the prices of

of English hops would be too low to enable us to bring them in. We thought that there would be a great loss upon Bavarian hops coming into this country; but finding that there was a deficiency of fine hops, and that if we had some choice good Bavarian hops we could get them in, in consequence of the shortness of the supply of good hops in England, we began to import them.

6871. It was not from a decline in the prices of Bavarian hops between October and February?—No.

6872. Are you sure of that?—Yes.

6873. Sir *Edward Dering.*] What was the price of the best East Kent hops at that time, when these Bavarian hops were worth from 7 *l.* 7 *s.* to 7 *l.* 10 *s.*?—They were worth from 90 *s.* to 5 *l.*

6874. With regard to the system of cultivation in Bavaria, did I rightly understand you to say that there was only one pole to a hill?—Yes.

6875. *Chairman.*] Have you been in that country?—Yes; I have an establishment there.

6876. Sir *Edward Dering.*] How many bines are there to a pole?—Two.

6877. Is that the universal practice?—Yes.

6878. And how many poles are there to an acre?—I do not think that there would be more than about 800 or 900 poles on some acres. Sometimes they have about 800 hills to an acre, and one pole to a hill; that would be about 800 poles to an acre.

6879. Mr. *Bass.*] Is that at six feet apart?—They vary; some are six feet apart, some seven feet, some five feet by six; they are not always planted at the same distance apart, but they are all poled with one pole to a hill.

6880. Supposing that the average of six feet square to a hill (which is the distance in England, or thereabouts), how many poles would that give to the acre?—It would give nearly 1,200.

6881. So that your calculation should be 1,200 instead of 800?—At six feet by six, or five feet by six, there would be 1,200; but some of them are wider apart; some would not be more than 800, and some 1,000, according to the width which they plant them apart; but they would all be upon one principle.

6882. Sir *Edward Dering.*] Is there any peculiarity in the way in which they cultivate their hills?—They use horses very little upon the ground; they do not work the land about as we do in England. About the month of June they strike them through, and ridge up the sides close to the hill, and bury the manure; and then the manure lies there buried instead of being spread and dug in; they strike it in with the rows, earthing the hills in a row, and they strike through each alley, as the term is, throwing them up and covering the manure in. Then, after the hops are picked and the poles taken up, they spread it out, and they dig the manure in.

6883. Do they use as much manure in Bavaria as they use in England?—Nothing like so much.

6884. What description of manure do they use?—Generally yard manure that they make about the houses.

6885. Mr. *Bass.*] Could you state the average produce per acre in the average of years?—We have it for seven years, according to what we could collect, but there is no statement that we can rely certainly upon, because there are no official returns of anything. Often, the returns are made by people who never go out of the town, and who have hardly ever seen a hop garden.

6886. What is the average produce, according to the best computation that you are able to make?—It is from two to three cwt. per acre, for the last seven years, taking Bohemia and Bavaria, and taking 20,000 acres in Bohemia, and 25,000 acres in Bavaria.

6887. Is your computation confirmed by the opinion of your correspondents in Bavaria?—Certainly; it is by some of them, but there is nothing accurate about it.

6888. Have not your correspondents in Bavaria published statements to the same effect?—Yes; and they published statements of the quantity at a certain season of the year, and the quantity of cwts. which are likely to go from each district at that period of the year. But the quantity is very wrong, for in many instances where they state that there are not more than 2,000 bales in such district, if you remained in the district two or three days, you would be able to buy considerably more. I mention this to show that I do not think any

Mr. *T. Waterman.*

23 July 1857.

reliance is to be placed upon any returns which we get from Bavaria. There is a statement from a person who makes the principal return of the district, but I do not believe it is to be relied upon as being correct.

6889. Who is that?—Mr. Forcheimer.

6890. *Chairman.*] What is he?—He is a hop factor, or a hop broker, as he is called; he receives consignments from the different peasants, or from any little dealer in the country districts who buys up the small quantities of hops to sell them, just as the factors employed for other goods which are sold by commission.

6891. Did you ever buy of him?—No, I never bought of him; we have our own broker there, who goes through the country, and purchases the hops of the growers.

6892. Does the hop grower sell his hops on his own account, or does he sell through the factor, who is paid a commission?—The factor is paid a commission by the grower for selling his hops; but many growers sell their own.

6893. Does the factor dry the hops for the grower?—No; they are not dried at all by either the grower or the factor; they have a plan of what is called "sulphuring," but that has not been till lately. They have large square rooms, with frames, like sieves, which are placed in layers one above the other, and the hops are placed in these sieves with a fire under them, where they burn sulphur, and the heat passes through. It is done upon the same principle as we dry bacon in England. The sulphur is completely confined in them for three or four days, and then they pull out a damper, and let out the sulphur, and they consider this all the drying they require.

6894. Is that done by the merchants?—That is done by the merchants, and sometimes by the factors, who get the hops collected together.

6895. Is it the custom for the peasant to send his hops undried, just as they have been picked, to the factor in town, who sells them to the merchant, who dries them, and prepares them for the brewer?—Yes.

6896. Mr. *Bass.*] Do not the peasants first dry them on boards?—They dry them themselves in the sun, but no artificial means are used by them.

6897. Does not the drying in the sun answer for all Bavarian purposes, unless they are going to be exported?—When the Bavarian considers that the hops are sufficiently ripe, he goes and cuts the bine at once; they are stripped off with a long pole with a fork to it, and then they are thrown off from the top of the poles, and those hops are then carried in-doors, and are picked by the family or any others who are employed in picking; when they are picked they are dried in the sun a few days, and then put into the roofs of their houses. The roofs in the houses are very high, and they have often places in the roofs with four or five floors, one above the other, and the hops are laid there till they are sent to the factor to be sold. They are sold at Nuremberg principally; but then the merchants, when they purchase them, have a process which they call "sulphuring;" they do not understand the system of drying the hops as we dry them here; there are one or two instances of it, but very few.

6898. Mr. *Brand.*] What is the object of sulphuring?—They have an idea that to send to England the hops must be sulphured, and it improves the colour; when the hops are ripe they cut the bine, to prevent their getting brown; and by sulphuring them as well, they bring them to a better colour than they would be if the bine was not cut.

6899. Are they sufficiently dried by the peasant for use?—They are for immediate use; but not even then to be packed close.

6900. Mr. *Bass.*] Have they been accustomed to dry them upon kilns in addition to the mode they use themselves?—No.

6901. If they use them themselves they are satisfied with the sun drying?—Yes; but they do not pack them.

6902. Sir *Edward Dering.*] Do not they use sulphur?—They do not use sulphur for their own use.

6903. Is not there some regulation by which hops that have been sulphured may be seized by the police?—Yes, if they were sulphured in Bavaria for Bavarian consumption.

6904. Would not English hops coming into Bavaria, if it was known that they had been sulphured, as they are commonly in England, be liable to be seized by the authorities?—I do not think that they would be liable to be seized

seized because they were sulphured in England, but you would not get the brewers to buy them.

6905. Mr. *Bass.*] Are you aware of any Bavarian brewers who have tried English hops?—No, I am not aware of any.

6906. With regard to the number of hills and poles to the acre, must not you have the same number of poles as you have hills?—Yes.

6907. Do you mean to say that you believe that they average about 600 or 700 hills and poles to the acre in Bavaria?—Yes.

6908. *Chairman.*] You said that you had an establishment there; is that for curing Bavarian hops for the English market?—Yes.

6909. Have you any land in your own hands?—We have only the land that we have built our works upon, and some land adjoining, but very little.

6910. Do you grow hops yourself?—No.

6911. Sir *Edward Dering.*] When you spoke of 7 *l.* 10 *s.* as being the price of Bavarian hops, did not you mean that that was the price at which they are sold to the brewers?—Yes, duty paid.

6912. You also spoke of the price of East Kent hops as being from 90 *s.* to 95 *s.*?—Yes.

6913. Was that the price at which they were sold to the brewers, or the price which was paid to the grower?—That was the price that was paid to the grower.

6914. *Chairman.*] Is there any material difference between the price that is paid to the grower and the price that is paid by the brewer?—The difference would be this: very frequently you buy a growth, some portion of which is very inferior to the other part of it; and, after you have separated the good hops, you would sell the other portion of the growth at a less price, and of course an advance is made in the price, in consequence of that, of the better portion of the growth.

6915. Mr. *W. Martin.*] Must not the merchant also have a profit upon the transaction?—The merchant must have a profit upon the transaction; but still there is a great difference in the different classes of hops that are grown by the same planter.

6916. Sir *Edward Dering.*] If the best Bavarian hops were sold to the brewer at 7 *l.* 10 *s.*, at what price were the best East Kent hops sold to the brewers at the same period?—I do not think we have sold any ourselves for more than 5 *l.* to any brewer during the whole season.

6917. Is the Committee to understand that there is an absolute difference of 2 *l.* 10 *s.* between the price of the best East Kent hops and that of the best Bavarian hops in this season?—Yes.

6918. Do you know anything of the value of hop land in Bavaria?—I have asked the question several times when I have been in the country, and I have only been informed that land, if it is hop land, is of course worth more than land that is not fit for the hops, and that land, generally speaking, is worth from 2 *l.* to 2 *l.* 10 *s.*, and, in some instances, 3 *l.* per acre to rent.

6919. Is not it usually the practice to buy the hops and the poles together with the land?—I am not aware of that.

6920. Can you tell the Committee at all what would be the price of land which is under hop cultivation?—It depends entirely upon the district; it would be from 70 to 80 *l.* or 100 *l.* or 120 *l.* per acre.

6921. Do you think that in what is called "favoured districts," 120 *l.* per acre would be a high price?—I think I could get almost any quantity of land at that price.

6922. If a statement was made to this Committee that the best hop land was worth 300 *l.* or 400 *l.* per acre, should you be inclined to believe it?—I do not believe it, because the land I bought to build upon is in the town, and near the railway, and it cost me only 200 *l.* per acre, and that is considered very high.

6923. *Chairman.*] Was not that accommodation land?—That would be expensive land.

6924. Is the price of that any proof of the value of land?—I only gave 200 *l.* an acre for that land.

6925. Sir *Edward Dering.*] If you were only obliged to give 200 *l.* per acre for accommodation land in the town, and close to the railway, is it not impossible that hop land, however good it might be, could be worth 300 *l.* or 400 *l.* an acre?—That is my idea.

Mr. *T. Waterman.*

23 July 1857.

6926. Mr. *W. Martin.*] Do you include the value of the poles in your estimate of the price of the land?—No.

6927. Are you aware that the gentleman who gave evidence upon this subject included in the price of the land the poles and the hops planted upon it?—I was not aware that they ever sold their land in that way.

6928. In such a transaction as that, should you be surprised to find land sold at 300*l.* an acre?—I should think that would be an extreme price.

6929. *Chairman.*] Are you aware that the land near Farnham is 500*l.* or 600*l.* per acre?—That is a very different thing altogether; it is a different soil, and different sort of land altogether.

6930. Is there not some hop land in Bavaria that is particularly suitable for hops?—I believe that the whole of the soil of Bavaria is very congenial to hop growing. I do not think that one place is much better than another.

6931. Do not you think that there are in Bavaria some particular hop-gardens which are specially suited by nature for the production of hops, just as there are some particular vineyards which are specially suited for the production of vines?—There is a favoured district called Spalt; but I have seen much better hops grown out of Spalt than ever were grown in it; I think there is a prejudice in favour of Spalt hops, and of hops in the neighbourhood, but I could find hops grown away from that district which are far superior to any grown in Spalt.

6932. Did not you tell the Committee that the rent of land in Bavaria was 3*l.* an acre?—Yes, from 2*l.* to 3*l.* an acre.

6933. Is not the value of money in Bavaria considerably greater than in England?—It is greater; but not much.

6934. Mr. *B. Blakemore.*] At what period of the year do the Bavarian hops generally come into this country?—There is no particular period; it depends upon the market here; if there is a high market here, of course they will come more abundantly. It depends entirely upon the demand here; we are subject to a great many delays in getting them over here.

6935. Is there any particular period of the year in which they arrive in great quantities?—No.

6936. Are the planters there men of sufficient capital to hold them, or do they get into the hands of merchants?—The whole of the peasantry appear to me to be very well off, and able to hold their hops if they wished to do so. It is very rarely indeed that the market is pressed; and if there are one or two buyers in the market, immediately a rise takes place; it is known all through the district.

6937. Have you been to Bavaria lately?—I have not been there since last February.

6938. Are the stocks of hops which were held for the winter large?—No; I should say they are small at the present time.

6939. Are they pretty well cleared off?—Nearly so.

6940. When did you buy Bavarian hops last?—I bought a short time ago, through the broker whom we have there.

6941. In what month was it that you bought?—We bought some this month, and some the month before; we bought in May, June, and July.

6942. Would you favour the Committee by telling them what price you gave in May, June, and July?—From 36 to 40 florins; that is, from 3*l.* to 3*l.* 6*s.* 8*d.*

6943. Is that the average price?—Yes; we are paying from 36 florins to 40 florins for them at the present time.

6944. Mr. *Bass.*] What was the price of your last transaction?—Forty florins. That, at the rate of 12 florins to the 1*l.*, would be about 3*l.* 6*s.* 8*d.*

6945. Mr. *B. Blakemore.*] Where was that price given?—In Bavaria.

6946. *Chairman.*] Were the hops that you bought at that price cured and packed?—No, they are the prices of the goods to the peasants; we buy them as they are lying in the roofs of the houses.

6947. What would those hops cost per cwt. by the time they are cured and packed and brought to market?—That is the cost in Bavaria. Then there is the drying and packing, which will be about from 18*s.* to 20*s.* a cwt., including a loss of weight in drying.

6948. Mr. *Bass.*] Does not that include the freight?—No; there would be 10*s.* freight besides, and the duty would be 2*l.* 5*s.*

6949. Have

6949. Have you included the merchant's profit?—No.

6950. Is not that as much as he can get, or the market will afford?—Yes.

6951. Sir *Edward Dering.*] Does not that amount to 7 *l.*, without the merchant's profit?—Yes; the market has risen gradually.

6952. Mr. *Bass.*] Have you sold Bavarian hops to brewers within the last month?—We have not sold hops to the brewers within the last month, because we could not get them over in time; otherwise we could have sold them.

6953. Will you name the last price at which you have sold those hops to the brewers?—Seven pounds ten shillings, and those hops went into Kent.

6954. Was that within the last month or within the last two months?—It was within the last two months.

6955. Those hops went into Kent?—Those hops went into Kent; and since that time the brewer has given me an order for several more bales if I could get them in time, but it was impossible to get them in time.

6956. Mr. *Brand.*] With regard to the last purchase of hops which you made, and which cost you 3 *l.* 6 *s.* per cwt. in Bavaria, what sum will pay you for that particular purchase, paying duty and all charges?—We should be satisfied with a profit of from 10 *s.* to 12 *s.* per cwt.

6957. *Chairman.*] What was the crop in Bavaria last year?—There was not a large crop last year, but this year they speak favourably of it. It is likely to be as large a crop as ever was known.

6958. Mr. *Bass.*] You are a hop grower, I believe, as well as a hop merchant?—I am a hop grower in England.

6959. Have you grown hops for a great many years?—Yes.

6960. In what part of the country do you grow them?—In Kent; some in the Weald of Kent and some in Mid-Kent.

6961. Will you give the Committee your views as to the probability of any very large proportion of English hops being displaced by foreign hops in the event of perfectly free trade?—I do not think that the English planters would have anything to fear from any hops that might come from abroad, but they would turn their attention to growing a better description of hop. I think we have lost ground a good deal by getting a spurious article called the Colegate hop; we have grown great quantities, which has caused them to be sold at small prices, and I think that it would be ruinous to the planters. I think that within the last few years we have not had a sufficient quantity of choice hops, and the consequence of that has been that the brewers are going to Bavaria for better classes.

6962. *Chairman.*] A witness who was examined before this Committee stated, as his opinion, that if the planters were exposed to open competition with the foreign growers, they would, in self-defence, have recourse to growing a better class of hops; do you think that that would be the case?—I have no doubt that the English growers would see that it would be a benefit to them to do so, but at present they have much fallen off as regards quality within the last few years, not only by growing inferior sorts, but by manuring with artificial manures. It is always the case, that if you manure hopswith guano, those hops will never come to maturity, and when put upon the kilns will not take the fire sufficiently to keep them, and will be unsightly, and bad flavoured.

6963. Sir *Edward Dering.*] Would it be possible, according to your judgment, in the Weald of Kent and Sussex to grow a superior class of hop?—They can grow Jones's and Grapes, which are far superior to the Colegates. I have no doubt that the cause of growing Colegates is that they grow a great quantity, and that they can grow them upon any stale ploughed land, and they are the only hops that they can get to grow there. I have no doubt that the plantation is very much increased with this spurious kind of hop.

6964. Mr. *J. Locke.*] Do not they sell for a price?—They sell for a price when we have had blights; and I have no doubt that many brewers have been very much taken in with them, and they have been bought by many people and sold for a very different hop from what they really are; and I have no doubt that there has been a great deal of bad beer in consequence of those hops being grown. I think that if we were prohibited from growing them, we should not hear any complaint about the hop duty. I think that has been the cause of the distress in great measure.

6965. Sir *Edward Dering.*] You grow hops in Mid-Kent?—Yes.

Mr. *T. Waterman.*

23 July 1857.

6966. In what part of Mid-Kent?—At Nettlestead.

6967. What description of hops do you grow there?—I grow Jones's and Grapes, and I have one acre of Colegates, which was upon the land when I bought it, and I have never done anything to it. I told my bailiff to kill them if he could; but that plantation has generally grown from 14 to 20 cwt. an acre.

6968. What is your usual growth?—We generally grow 12 or 14 cwt. an acre.

6969. Speaking as a planter, do you think that they pay you?—I think they have, but I doubt whether they will not do us a great deal of mischief, and I think it is now coming. The brewers find that there is something the matter with these hops, and they have begun to look out for the Colegates, and they put the question to you; they say, "Have you any Colegates?" or, "If you sell me any Colegates, I will not purchase any more hops from you."

6970. Up to the present moment, you have no doubt that the planters have done very well with them?—I think it is very likely that they might have paid them, because they have grown very large quantities; and having a blight in 1854, anything was bought up, and in the early part of that season we might have sold such hops, and they would have paid well for holding over.

6971. *Chairman.*] Has the deterioration in the quality of English hops been confined to the hops grown in Sussex?—No.

6972. Have the East Kent hops deteriorated in quality?—Yes, I think they have. They have gone on growing Colegates both in Mid-Kent and in East Kent, as well as in the Weald of Kent and Sussex. In all these districts a large proportion of Colegates are grown.

6973. Do not the Colegates grow heavy crops?—Decidedly so.

6974. Have not the planters been induced to plant the hops producing the greatest amount, because the demand for hops has increased in the country, and more were called for?—The great inducement, of course, is the very much greater quantity; planters are always trying for quantity, and they have manured, and determined to grow larger quantities, and I think we are losing the original quality we used to have.

6975. Mr. *Bass.*] Do you admit that the Colegates are more prolific than the Jones's?—Decidedly; they will take large poles, and the Jones's will not take large poles. The Jones's grow upon short poles, and they cannot grow the same quantity, but they grow a much better quality.

6976. *Chairman.*] Do you think that the protective system, by confining the consumer to the home market, has been the instrument in bringing about this change in the nature of the English hops?—I do not quite understand the question.

6977. Do you think that if there had been free trade in hops, and the consumer could have supplied himself either from at home or abroad, as he pleased, this change in the cultivation of the English hops, which you speak of, would have taken place?—No, I think not; I think he would have confined himself then to growing better hops.

6978. Mr. *J. Locke.*] Do you believe that, as a hop merchant?—Yes.

6979. When you are selling hops, do you say, These are Goldings, or Colegates, or Jones's, or Grapes, whichever they may be?—Most decidedly.

6980. What are the relative prices that they fetch; will you name those which come first?—The Goldings.

6981. Which second?—The Grapes and the Jones's are about upon a level.

6982. Do they fetch a larger price than the Colegates?—Generally speaking.

6983. Do they always?—If people understand them, they do. I am so opposed to the Colegates, that I will not purchase them, if I can help it.

6984. Where they are mentioned by name in the market, what are the relative prices that they fetch?—That depends upon where they are grown, and upon whether they are well managed; a good deal depends upon that, as regards the Colegates. The Colegates, when well managed, and with good colour, deceive the eye, so that many people will purchase them for Jones's or even Goldings.

6985. Are the Colegate hops never good?—They are good so far as the eye goes, but not for brewing purposes.

6986. Have

6986. Have you never sold Colegate hops to the brewers?—I have sold Colegate hops to the brewers, naming the fact that they are Colegate hops.

6987. Do the brewers buy them knowing they are Colegates?—Very seldom. Before they became so generally known they did buy them, and they did not get so good a quality as they were supposed to have.

6988. Cannot it be grown as good as the others?—It can be made to look as handsome as any hop; but as to intrinsic value it is no such thing.

6989. Mr. *Bass.*] Nevertheless, their captivating appearance often contributes to their being sold at what you consider far beyond their intrinsic and relative value?—Most decidedly. In many instances I believe they are grown by men who understand the hops, and who get them up so handsomely that they would almost deceive a good judge in appearance till you come to rub them down. They are a very spurious hop, and the brewers have suffered very much from them.

6990. Do you imagine that with regard to the great bulk of the growers in the Wealds of Kent and Sussex whose hops are generally sold for the ordinary purposes of trade, and very seldom to make the finer descriptions of beer, it is at all likely that their prosperity will be interfered with by any competition from the Bavarian hops, except in years of extreme scarcity?—No; I think that the only people who would suffer at all would be the better class of growers, such as those of Mid and East Kent.

6991. Those who ought to grow good hops, and do not?—Yes; in fact, it would set them to improve the cultivation, and compete with the best Bavarians. The great cause of the Bavarians being brought over is the neglect of the finer classes of hops.

6992. Under any circumstances, cannot Bavaria produce a better hop than can be produced in England?—Yes; I should say the best Bavarians are fully 30 per cent. better than any East Kent that can be produced.

6993. Sir *Edward Dering.*] Do you think that if the East Kent planters were to improve the quality of their hops very much, they must sacrifice a good deal in quantity?—They must go back and grow the old-fashioned hops; but they must have better managers. Most of them now are exceedingly good managers of the hops till they come to be picked and put in the kiln. But I have seen the whole rent of a farm lost from bad management in drying hops upon the kiln. I consider that the East Kent growers are exceedingly bad managers in curing hops.

6994. Do you consider that they would have to sacrifice a good deal in point of quantity, if they had to give a good quality?—I do not know but what they might grow a good quantity of good hops; that depends on the season.

6995. Has not the quality been deteriorated a good deal by their having gained in quantity?—Yes; but they would get a larger price. Wherever you have a great quantity of hops grown you never have a good quality. If you take the best Goldings, and those Goldings are manured, and you grow a great quantity of them, you do not have the same in point of quality; but at the same time I believe they would get more by the small quantity than the larger, by their extra price for quality.

6996. Therefore, am I not correct in assuming, that if the East Kent planters improve their quality, it will be to a certain degree at the expense of the quantity grown?—Yes.

6997. Mr. *Bass.*] Did I rightly understand you to say that the East Kent managers do not produce after they are picked so fine a result, and that their management is not what it is in Sussex, and probably in Worcestershire?—Just so.

6998. Is not that the case among the fine growers of Mid Kent also?—Yes; just the same; I believe there are better managers in the Wealds of Kent and Sussex; if some of the East Kent and Mid Kent growers managed as they do in the Weald of Kent and Sussex, I believe their hops would be much better. There is a great deal of the fine quality taken from the hop by management; for instance, in taking the hops wet from the field, and putting them on to the kilns. If they do not understand how to employ the air at the bottom to carry off the steam, they will take away all the flavour and the aroma from the hops.

6999. Sir *Edward Dering.*] That is by a defect in ventilation?—They do not employ people who sufficiently understand it; the labourers, men who dry

Mr. *T. Waterman.*

23 July 1857.

the hops, know nothing of the effect of the air, or how it would operate in a heavy atmosphere; and an article that is of exceedingly great value is given into the hands of these men. The process of growing is carried out by scientific men, and they put the produce of a crop that cost them an enormous deal of money into the hands of the most ignorant men upon the estate.

7000. Do you mean the Committee to understand that, as a class, the Sussex growers are a better class, and better managers than the East Kent?—I would say that the Weald of Kent and Sussex generally are much better managers of hops than those in East Kent and Mid-Kent.

7001. Do you think they use sulphur more extensively?—No, I think they pay more attention to the air and the construction of oast-houses, and things of that sort, which I have given great attention to myself.

7002. Mr. *Bass.*] Is not that deterioration in colour often due to the peculiar character of the hop, and has nothing whatever to do with the management?—Yes, as far as the hops that become brown by hanging on the poles are concerned.

7003. Are not the finer hops of East and Mid-Kent more liable to become brown than those of Sussex and the Weald of Kent?—I do not think that is the case.

7004. Do you believe that if the growers of hops in this kingdom managed their business as well as it might be managed, they have nothing to fear as to their permanent interests from competition with the foreign growers under free trade?—As a grower of hops, I would rather have free competition; I think we could do better; I think each planter would endeavour to find a man that understood the management of his hops, and the drying of them; and I think it would induce them to see that their hops were the right class of hops to grow in the different districts; and then I do not think we should have anything to fear from the foreigner, whether you take the smaller quantity that is grown per acre, or the great expense of foreign hops, I do not think the British grower has much to fear from foreign competition.

7005. Sir *Edward Dering.*] Did not you say that the only class that need fear competition were the East and Mid Kent hop growers?—I was speaking of the best class of hops; and then I really believe that they have nothing to fear; that they would grow again the better classes of hops.

7006. If the East Kent plantations remain as they are have you any doubt that they would be affected by an unlimited production of foreign hops?—They would have to compete, no doubt, with the best Bavarian hops.

7007. Mr. *Bass.*] But with a limited trade?—With a limited trade.

7008. Mr. *J. Locke.*] Supposing there is a large importation of foreign hops into this country, do you suppose that the Sussex hops will obtain the same price as they do now?—The Bavarian hops cannot interfere with the Sussex hops.

7009. Is it not the fact that there is only a certain limited quantity of hops required for consumption in the country?—Yes.

7010. Supposing there are so many hundredweight of hops annually used, if you take a fourth of them from abroad will not that one-fourth be then deducted from that which is sold at home?—Of course it must make some difference.

7011. Would not to that extent the home consumption be reduced?—I am speaking more particularly of the better classes of hops; my opinion is, that the better class of hops that come from Bavaria will have nothing to do with the Weald of Kent and Sussex hops.

7012. Whether good, bad, or indifferent there is a certain quantity of hops consumed in the country; if for that consumption one-fourth, or whatever quantity you like to say, is introduced of foreign hops, the consumption of this country being limited, does not that displace a certain quantity of English hops?—Yes; that will displace a certain quantity of the worst portion of them; those that are not fit for use.

7013. If they displace a certain quantity of the worst portion, will not the injury fall upon Sussex?—No.

7014. Why not?—Because often the worst portion that we have is from Mid and East Kent; they are very mouldy and bad sorts, and will not interfere with Sussex hops.

7015. Would not foreign competition be more calculated to displace hops of an

an inferior quality than hops of a superior quality?—I do not think that you would get a sufficient quantity of hops to affect the market.

7016. I ask you whether the coming in of those hops will not be much more likely to displace hops of an inferior than of a superior quality?—If you grow an overabundance, of course you cannot use all that are grown.

7017. Will not those hops coming in be more calculated to displace hops of an inferior quality than of a superior quality?—If they did not displace the inferior quality, it would be of no use having them over.

7018. And displacing the inferior qualities, would not they be more calculated to displace Sussex hops than the East and Mid Kent hops?—No; I think not.

7019. Are not the Sussex hops of an inferior quality to the East and Mid Kent hops?—They are of an inferior quality for brewing; but there are many hops grown in Mid Kent that are sold at a lower price than Sussex hops; and competition will displace those.

7020. Are not the best hops grown in Kent?—Yes, and some very bad ones.

7021. And the worst in Sussex and the Weald of Kent?—Yes, the cheapest.

7022. Mr. *Bass.*] Are they worse than those grown in Worcestershire?—Not worse, but about the same quality.

7023. Mr. *J. Locke.*] Will not those inferior hops be displaced in a great measure by the first rate hops?—If there is a better article here, it will be bought first, and we shall have others left.

7024. Will not Sussex suffer more than East and Mid Kent?—I do not think that Sussex would suffer from the importation of Bavarian hops.

7025. Although the sale of their hops will be taken away, do you mean to say that they will not suffer?—They may suffer to a certain degree, but not so much as the inferior Kents.

7026. Mr. *Bass.*] You have gone through a long cross-examination, with a view to obtain a contradiction of your previous assertion, that in your opinion the Bavarian hops will not come generally into competition with Sussex and Weald of Kent hops. When you speak of a limited consumption, does not it appear to you that the consumption may be limited by this protection, but that if that were removed, would not it at once increase the consumption of hops; it would at once admit both the Bavarian hops that might be imported, and a considerable quantity of Sussex hops?—I am of opinion that the greater quantity of hops we can get, the greater consumption there will be for them.

7027. Mr. *J. Locke.*] Do not you think that would have reference to the malt duty?—I think before you can take the duty off hops, there must be a reduction of the duty on malt; because I am very well satisfied that the cheaper we can get malt, the greater will be the consumption of hops. I think if you were to take 10 *s.* a quarter off the duty upon malt, and the war-tax on the British growth of hops, and if you were to reduce the foreign duty to 1 *l.* per cwt., the British planters will have a great protection, and you would have no more difficulty. The consumption would be so much increased, that all the hops we could grow would be sold.

7028. Mr. *Bass.*] Is it your opinion that it would be the inferior hops that would be interfered with by the importation of Bavarian hops?—The inferior Mid and East Kent hops would be affected, and no others.

7029. Do you mean that those districts which are generally expected to produce fine hops, failing in producing fine hops, might be materially interfered with by the finest quality of Bavarians?—That is what I contend for.

7030. Is not it the fact that, as a general rule, the importation of Bavarian hops is represented to be of the finest quality that Bavaria produces, and is intended especially to compete with the finest quality of English hops?—They are brought here for no other purpose; the whole that we bring are entirely to compete with the best class of English hops.

7031. In the year 1856, after the largest growth of English hops, by nearly one-half, that ever was known, did not you import a considerable quantity of high-class Bavarian hops?—We imported some, but not many.

7032. Were not they imported for the finest purposes?—Yes.

7033. Would not it be preposterous to say that the hops which you have imported for the last four years could be brought into competition with Sussex and Weald of Kent hops?—It could not be done, the price in Bavaria is much too high.

Mr. *T. Waterman.*

23 July 1857.

7034. In point of fact, do not they come into competition with the hops that have been grown in the best parts of East and Mid Kent?—Yes.

7035. Mr. *B. Blakemore.*] Do you know the hop-growing districts of Worcestershire and Herefordshire?—I know a little of them, but I could not speak much of them.

7036. What is your opinion of the cultivation carried on there?—It is much better than that in East and Mid Kent.

7037. What is your opinion of the care in which the plant is dried?—They are much better managers there, generally speaking; I think we are very deficient indeed in Mid and East Kent in the management of our hops.

7038. Mr. *Beech.*] You said that Mid and East Kent produced by far the best English hops; do not you consider that the Farnham hops are as good?—We do not consider them so good. There is a prejudice in certain districts for Farnham hops, and they do not like to use anything else; but as regards quality we do not put them with Mid and East Kent hops. There is a certain district in which there is a prejudice in favour of them; and in that certain district, if your were to offer them a good sample of East Kent hops, and an inferior sample of Farnham hops, they would prefer the inferior sample of Farnham hops to the better sample of East Kent hops.

7039. Mr. *B. Blakemore.*] Is there any other country besides England which imports a considerable number of Bavarian hops?—Yes; There are hop merchants in Bavaria who travel through all districts to sell their hops.

7040. Would this country be by any means certain of a regular and constant supply of hops from Bavaria, if it neglected the culture of its own hops?—As far as Bavaria is concerned at present, of course they could not supply us with the quantity of hops that we should require.

7041. Have not they other markets for their hops besides this country?—Yes; certainly.

7042. Are they not as accessible as this country?—Yes; quite so.

7043. Do you think that it would be altogether politic or safe to inflict an injury upon the home producer in this country, in the confidence that you would always get a supply of Bavarian hops?—I do not think it would be advisable to do it in a hurry.

7044. *Chairman.*] What do you refer to?—It would not be advisable to interfere too much with the growth of English hops. If we were to give up hop-growing in this country, Bavaria is not in a position to supply the quantity that would be required.

7045. If Bavaria is not in a position to supply us, do you think that we should give up hop-growing in this country?—No, I do not think we should. If we were to get free trade in hops, I think that we might increase our plantations in England, and grow better kinds of hops.

7046. Mr. *J. Locke.*] You have stated that there is a limited growth in this country; upon what principle do you say that if hops came from abroad more would be grown in England?—That was upon the supposition that we took off 10 *s.* from the malt duty. I do not think that we could take off the hop duty without lowering the malt duty.

7047. Sir *Edward Dering.*] You would not recommend one without the other?—No; if we get a high price for malt the consumption of hops is decreased.

7048. Mr. *Bass.*] Is not the consumption of malt decreased when you get an extreme price for hops?—Yes.

7049. Sir *Edward Dering.*] Could you look to increase the growth of hops if the malt duty remained on?—Then you would get better quality grown.

7050. *Chairman.*] And we should not with free trade suffer in scarce years?—No.

7051. Although you say that the consumption is limited by the malt duty, do you mean to say that in the years when they are plentiful we do not consume more than in the years when they are scarce?—The two would be in proportion.

7052. Should not we get a better quality of beer in consequence of that?—Yes.

7053. Mr. *B. Blakemore.*] What is the general beverage in Bavaria?—Beer principally; there is a great quantity of beer consumed in the country.

7054. Is it a good barley country?—It is a good barley country; some of the finest barley that is grown in Europe is grown in the district between Nuremberg

Nuremberg and Munich; beer is very cheap; in fact, they are restricted in their price by the Government, the brewers dare not advance their price to the consumer; it is an article that is looked into by the police to see that it is according to the regulations in quality and strength, and if not, it is seised and destroyed. There are three articles in Bavaria which the Government are very particular about; they are meat, beer, and bread. No butcher can sell his meat until it has been inspected by the police.

7055. Is the beer that the peasantry drink in Bavaria stronger or weaker than what we drink?—It is about the same as our ordinary mild beer.

7056. Do they get it as cheap as we do?—It is about three kreutzers (that is, about a penny) a pint.

7057. Do they generally brew in their own houses, or are there large brewing establishments in the country?—There are brewing establishments, generally.

7058. Mr. *Bass.*] Are not they restricted with regard to the period when they begin to brew, and also when they leave off?—Yes, I believe they are.

7059. Are they allowed, without permission from the Government, to brew before a certain day in the winter?—There is a certain time fixed for one class of beer.

7060. Must they not also close at a particular time in the spring?—Yes, I think that applies to one class of beer; there is a commoner beer that they may brew at all times.

7061. Mr. *B. Blakemore.*] Is there any import duty upon English malt and English barley?—Yes, but I do not know what it is; I have never imported any.

7062. And upon English hops?—Yes, but I do not know what it is.

7063. Mr. *J. Locke.*] Would not the importation of Belgian hops interfere with Sussex hops?—I have seen very little of Belgian hops, and I know nothing of Belgium; but I know that the class of hops there are very inferior hops, and I do not think they would come into competition with the best English hops.

7064. Which are the best driers, the Bavarians or the Kentish farmers?—I do not consider that they know anything about hop-drying in Bavaria, except at the places where the English kilns are erected.

7065. You have, I believe, yourself an oast-house in Bavaria?—I have.

7066. Do you dry hops there?—Yes.

7067. Sir *Edward Dering.*] Do you send English people there to conduct the process?—Yes, I have people from my own farm there.

7068. Mr. *J. Locke.*] Is there much English capital employed in the hop trade in Bavaria?—Not a great deal.

7069. Do you know of any English people besides yourself who have capital invested there?—No, I do not know of any others.

7070. Mr. *Bass.*] Are not there several English people in the hop trade?—They have agents there; but you are obliged to show to the Government that you are in a position to carry out any undertaking you may make, before they will give you a certificate as a trader, or as a merchant. You must have a certificate from your banker to show that you are a man of capital, and are able to carry out the undertakings which you are likely to make, and a certificate from the lord mayor as well, before they will give you a certificate even to trade; and it is with some difficulty that you will get that.

7071. Mr. *J. Locke.*] Supposing that the Customs duty were taken off, would there be sufficient inducement to lead people to embark capital in the cultivation of hops in Bavaria?—I do not think so.

7072. Have not you laid out a large amount of capital even with the duty on?—Yes.

7073. And yet you do not think that if the duty were taken off there would be any greater inducement?—No; I think I should sell my works in that case.

7074. Would you do that because you would sell so well?—I do not think I should be able to sell so well as I should now.

7075. Do not you think that you would get as good a price for it if the duty were taken off?—I should not get so much as I could now the duty is on.

7076. Mr. *Bass.*] Do you think that you have a great exclusive advantage now, which would be injured if the duty were taken off?—I think that Bavarian hops would rise so high, that the trade would be of very little use. I would prefer

Mr. *T. Waterman.*

23 July 1857.

prefer having the duty on in buying hops in Bavaria to having the duty off, because they would take more than the advantage of the duty being off in the price. It would take a long time to get up a very increased plantation of hops. In Saxony I think they might grow good hops.

7077. Mr. *J. Locke.*] If 45 *s.* duty were taken off, would not there be a better opportunity for the growth of hops in Saxony?—There is no knowing what might be done in that case.

7078. Do you think that the duty is an encouragement to the foreigner?—It is no encouragement to him.

7079. If you took it off, would not he be encouraged?—I do not know that he would. I do not think that it would affect the English plantations much. He would be encouraged in some instances, but not to the extent that he might have calculated.

7080. Mr. *Bass.*] Do you mean to say that it is an exceptional trade, and that the general business of hops in this country is not, under any circumstances, likely to be done with foreign hops?—No, I do not think that they would take interest enough in Bavaria in growing hops, in the proportion it is required.

7081. Mr. *J. Locke.*] Do I rightly understand you to say, that if once the Customs duty were taken off, the Excise duty would make no difference whatever to the protection of hops?—I say that it would; that the English would produce more than they do, because there would be greater trade for them.

7082. Would more hops be wanted in that case?—If you reduce the price of malt, there would be a greater consumption; I cannot separate it from the malt.

7083. Is it not the case, that unless you take the duty off malt, there would be no more produced, even if you took off the Excise duty and the Customs duty?—I think not.

7084. Do you see any advantage whatever in taking off the Customs and Excise duty, and leaving the malt duty as it is?—I do not know that there is any particular advantage in it.

7085. *Chairman.*] Should not you, as a planter, prefer being without an Excise duty?—No; if I were a planter, I would rather have free trade in hops than not; in fact, I would rather have it.

7086. Mr. *J. Locke.*] Why?—If you want to work it in this country at the same time, there must be a reduction in the malt duty; I cannot think of free trade in hops without some reduction in the malt duty.

7087. Sir *Edward Dering.*] Unless you diminish the malt duty, can you see any advantage in interfering with the present hop duty?—I do not think I can.

7088. *Chairman.*] Do not you, as a planter, think that it would be a relief to you to have no Excise duty?—I think it would be a great relief not to have an Excise duty upon hops.

7089. Mr. *Bass.*] Can you recall to your mind the year 1840?—No, I cannot; I know that there was a small duty that year.

7090. Do you recollect whether hops were at that time sold at very high prices?—Some hops were sold as high as 18 *l.*

7091. Are not you aware of any price beyond that for the hops of 1840?—I could not speak positively upon it.

7092. Could you tell the Committee the highest price for which you sold any part of the crop of 1853?—We sold 1853 hops as high as 14 *l.* per cwt.

7093. What sort were they?—I suppose they were Mid Kent hops.

7094. Did you sell any higher than 14 *l.*?—I had sales at 17 *l.*, 18 *l.*, and 19 *l.*

7095. Will you tell the Committee the highest price at which you sold in 1854?—I sold at from 15 *l.* to 22 *l.*

7096. You sold as high as 22 *l.*, and as low as 15 *l.*?—I sold lower than 15 *l.* I sold Sussex hops at 12 *l.* 7 *s.* 6 *d.*

7097. At what date was that?—On the 26th of March.

7098. Did you sell Sussex hops before Christmas?—No; we do so little in Sussex hops that I do not think I did.

7099. The Committee have been informed that there was a great reduction in the prices of Sussex hops after September 1854. Will you be good enough to tell the Committee what were the average prices at which you sold your hops in

Mr. *T. Waterman.*

23 July 1857.

in the various months, beginning with September 1854?—We averaged during the month of September 14 *l.*, but part of those hops were 1853 hops, and part 1854 hops.

7100. What was the average of the prices which the 1854 hops sold for in October, 1854?—The average of the prices was about 17 *l.* 16 *s.*

7101. What was it in November?—About the same price.

7102. What in December?—They were nearly the same; they were 16 *l.* 3 *s.* 7 *d.*

7103. What were they in January?—£. 17. 13 *s.*; there is an advance.

7104. What in February?—In February they were 15 *l.* 19 *s.*

7105. What in March?—£. 15. 13 *s.* 2 *d.* was the average of that month.

7106. Then would it be correct to say that hops of any class fell 50 per cent. in three months after the 17th of September 1854?—I should think not; because I see that Sussex hops were sold in March at 12 *l.*, and we sold Sussex hops in April as high as 14 guineas, and in May we sold at 10 guineas.

7107. Do you know the average price at which you sold Sussex hops during that season?—No; we sold some at 15 *l.* 5 *s.* in February.

7108. Does it accord with your experience that Sussex hops suffered a reduction even in six months of 50 per cent.?—No, certainly not.

7109. Was there any serious reduction with regard to other hops within even six months?—No; in the choice sorts there was not any fall in the price beyond the others.

7110. Could you name any price at which you sold hops at the end of March 1855?—I sold at 20 *l.* 10 *s.*

7111. Were those hops of a high quality?—They were a choice lot of East Kent hops.

7112. Where were they grown?—They were grown at Ickham.

7113. Who was the grower of them?—Mr. Hilton.

7114. What did you pay for them?—£. 19. 10 *s.*

7115. Had you them long in hand before you sold them?—I bought and sold them in the brewers' counting house at the same time by a telegraphic message. I first sold them, and then I bought them of the planter by a telegraphic message.

7116. If that represented the general run of transactions, would it be correct to say that there was any serious depreciation in the price of hops during the first six months after the harvest of 1854?—There was very little, according to our sales.

7117. Sir *Edward Dering.*] Do not you sell principally the high-classed hops?—Yes.

7118. Do not you trade in the finer description of East and Mid Kent hops?—Yes. As to speaking of anything as to Sussex hops, I hardly consider myself a judge of Sussex hops.

7119. Can you speak with pretty great certainty with regard to the depreciation in the price of Sussex hops during the period you have mentioned?—I can; for we had sold hops during that period at various prices. I do not believe that choice Sussex hops went down that amount; we had more to do with Sussex hops that year than ever we had at any other time, on account of there being good Sussex hops grown, and there being a large proportion of them.

7120. Are the prices that you have given the Committee the prices at which you sold to the brewers, or are they the market prices?—They are the prices at which I sold to the brewers; the amount of 19 *l.* 10 *s.*, which I mentioned as having been paid in the end of March, was paid to the planters.

7121. Were the averages that you have given the Committee the averages of the prices at which you sold to the brewers in those months?—Yes, they were.

Mr. *John Nash*, called in; and Examined.

Mr. *John Nash.*

7122. *Chairman.*] ARE you a Hop Merchant?—Yes.

7123. And you are a hop grower as well, I think?—Yes.

7124. In what part of the country?—In Mid Kent.

7125. On the Ragstone Hills?—Yes, near Rochester.

7126. How many years have you been a grower?—More than 20.

7127. How many acres have you now under hop cultivation?—Between 30 and 40.

Mr. *J. Nash.*

23 July 1857.

7128. I believe you are an advocate of the acreage duty?—I have been so, because I found that it pleased a great number of the hop growers. There was more unity upon that scheme, than upon any other which we have been talking of for a great many years; but I was willing to lend my assistance as long as there was any chance of the proposition being carried through. Since then I have called our committee together, and have stated my reasons, and have had their permission to state anything that I could for myself; not, of course, pledging the committee to anything which I might state here to-day.

7129. You do not so much approve of the acreage scheme yourself, but you propound it for the sake of others?—Quite so; it is much better than the present system.

7130. Do you consider that the present system is oppressive?—Yes.

7131. What remedy do you propose for it?—First, I would propose to take off the whole of the war duty, and the two five per cents., which we have been paying through the time of peace for nearly 40 years, improperly as I consider, and which is a great burden upon the hop growers; and, secondly, I would propose, if that could not be carried out, to take off the whole of the Excise duty upon hops, and to reduce the Customs as much as you take off from the English grower. If you take off 18 *s.* from me, take off 18 *s.* from the Customs, if it must be altered. I think it should not be altered at all; but still, if I cannot get the Excise taken off without a proportionate reduction, then that is a fair proportion; because if you do away with both the Customs and Excise duties, you will be relieving foreigners 100 per cent., while you are only relieving the home grower 40 per cent.

7132. Have you any knowledge of the cultivation of foreign hops?—Not of their cultivation.

7133. Sir *Edward Dering.*] Do I rightly understand you to say that rather than free trade should be established, you would have things remain as they are?—Not at all. I would have free trade to-morrow if I could. I advocated it 30 years ago, in getting up meetings in the county of Kent, with the late Mr. Hodges.

7134. *Chairman.*] Did not you act with Mr. Hodges?—I did in obtaining a number of meetings in the county; but the planters were so divided that you could not bring it to any certain point.

7135. Mr. *Brand.*] When you speak of free trade you mean the abolition of the Customs duty as well as the Excise?—I do, if I could not get it without; but I think it would be unjust to the home grower, in the way he is now burthened, to take off the whole of the Customs duty.

7136. What burthens do you speak of?—We are burthened with heavy rates and tithes; we are paying these tithes now on the growth of hops; we have to pay a large tithe and a small tithe and an extraordinary tithe.

7137. *Chairman.*] What are your reasons for thinking that the hop growers should be relieved from the Excise duty?—On account of the large amount of money that we are obliged to lay out in giving employment to the people in the neighbourhood, which is a benefit to the neighbourhood wherever it arises.

7138. Do you consider that it is a very expensive cultivation, and that the Legislature should not artificially increase the expense?—I think that hop land is not a legitimate subject for taxation.

7139. Do you consider that hop-growing is a benefit to the neighbourhood where it is grown?—Certainly when hops are not grown it is very much felt; a poor woman said to me only yesterday in my garden, "Sir, if you do not grow any hops, I do not know where my rent is to come from, as I have depended upon the picking of the hops for my rent."

7140. When the hop planters have a period of distress, does not that distress extend to a large population?—Certainly.

7141. Do you think that the abolition of the Excise duty would remove that evil?—Certainly.

7142. Have you any observations to make to the Committee upon the subject of the extraordinary tithe; do you think that it is fairly levied?—No, not at all. I understand that in Herefordshire and Worcestershire it amounts to from 2 *s.* to 5 *s.* an acre; and in the county of Sussex it is from 15 *s.* to 18 *s.*; therefore it cannot be fairly levied. Why a man should not take an acre of land and grow what crop he has a right to grow upon it, without having three tithes to pay for growing only one article, is to me a mystery that I cannot solve.

7143. Do

7143. Do you look upon the extraordinary tithe as an additional tax?—I do.

7144. What sort of hops do you grow?—I have a few Grapes, but I have principally Goldings; and I am going to plant the whole of my land with Goldings.

7145. What do you set the expense of cultivating an acre of your land at?—£. 32 *l.*

7146. That is including the last expenses?—Yes.

7147. As a hop merchant, have you any experience in foreign hops?—I have had some to sell.

7148. What kind were they?—Bavarians. As for selling Belgians and Americans, it is quite out of the question; not one brewer in 100 will look at them.

7149. Is that from the inferiority of their quality?—Quite so. I could give you one instance where a planter put some Belgian hops into my hands to sell, of which the cost was 120 *l.*, two years ago, and I sold them last month for 10 guineas. There was only one brewer throughout the three kingdoms that would make me any offer for them.

7150. Do you find that the generality of brewers have a decided preference for English hops?—Certainly; I cannot find any who use foreign hops alone; they may use them mixed with other hops, but not alone; that is my experience through the greater part of England, and all Scotland and Ireland.

7151. Have you come into contact with brewers from all the three kingdoms?—I have, within the last eight or nine months.

7152. Mr. *W. Martin.*] Have not you just been making a tour in Ireland?—Yes; and Scotland.

7153. For the purpose of selling hops?—Yes.

7154. And you have not been very successful?—No; there is no sale for them at present; the brewers will not buy.

7155. Do you find that the brewers generally are anxious for the removal of the duty on hops?—I not only find them so, but the public generally. Hundreds of people whom I have come into contact with I have asked the question of, and I have not found more than two dissentients upon the question.

7156. Did not you say that when they can get English hops they prefer English hops?—Certainly.

7157. Therefore you would only want the foreign hops to supply the public when there is a small crop of English hops?—Yes; they cannot brew them by themselves, and it only applies to Bavarian hops of the first class, and not to inferior ones.

7158. Mr. *Brand.*] Supposing there were complete free trade in hops, do you think that the cultivation of hops in this country would be improved or not?—I think that the cultivation of the worst class of hops would go out, and we should plant first class hops.

7159. Would not the same sorts of hops be imported under free trade as under the present system?—Quite so.

7160. Mr. *W. Martin.*] Do you think that they would be of a better quality and better managed?—We try to manage them as well as we can now.

7161. Mr. *B. Hope.*] Do you think that if there were free trade it would be possible that two or three planters would use one oast-house?—Not at all; I do not believe they will get the hops any cheaper; I mean to put the duty into my pocket, and that is where I think it ought to go.

7162. *Chairman.*] Are you speaking as a planter?—Yes; I am.

7163. Sir *Edward Dering.*] Do you think that the Weald of Kent and Sussex would be affected more than other districts by the importation of foreign hops?—I do not think so, for this reason, that the Weald of Kent and Sussex hops are consumed and sold principally to small maltsters and growers, and people of that class: if you were to put the choice East or Mid Kent Goldings alongside the Sussex hops, they would prefer the Sussex hops to the Kent hops at the same price, because they have more colour, and they are thin hops, and they suit their trade better. A maltster could not sell first class Goldings, which are thick hops, to his customers, even at the same price that he sells the Weald of Kent and Sussex hops; it is a different trade altogether, and therefore, though

Mr. *J. Nash.*

23 July 1857.

the Sussex men are very much afraid of its doing them an injury, I believe it will not.

7164. *Chairman.*] Supposing that you cannot get the Excise duty either reduced or removed, what should you do?—I would bring to bear upon the House of Commons such petitions and such requests not only from hop growers, but from brewers and consumers generally, that I think I should get the Chancellor of the Exchequer to alter his mind upon the subject.

7165. Sir *Edward Dering.*] You speak of petitions from the consumers; you said just now that if the duty were taken off you would put it into your own pocket; how would the consumer benefit by its being removed?—The consumer would sign the petition for it in the hope of getting it, and I, as an honest man, would tell him when he signed, that I did not believe that he would get it, but we would divide it between us.

7166. *Chairman.*] Would not the consumer benefit so far, that under free trade there would be a regular supply of hops in the country from year to year?—Yes.

7167. And that there would not be years of scarcity when the brewers would brew worse beer?—There would not be so great a scarcity.

Michael Thomas Bass, Esq., a Member of the Committee; Examined.

M. T. Bass, Esq. M. P.

7168. *Chairman.*] HAVE you any statement to make to the Committee with reference to the question of Customs and Excise duties?—I am prepared to express my opinion as to the present condition of this trade, and to suggest what, according to my judgment, would be a great improvement upon it. My opinion is, that it is generally a prejudicial system which now prevails. In the first place, I conceive that a protection on hops is totally inconsistent with our present principles of commercial policy; and that, if it were not so, hops are the very last article on which it would be wise to give protection, because hops are the most peculiar of all productions that I am acquainted with; they vary to the greatest extent in their produce, from nothing up to 25 or 30 cwt. an acre, and they are most essential in the production of the ordinary beverage of this country. They are also most important, as affecting the production of the revenue upon malt as well as upon hops; and consequently it seems to me that true policy, irrespective of the general principles of free trade, would demand that there should be no special protection upon the production of British hops. My experience, varied by the peculiarities of season, would go to show that we never have a very high price of barley with extreme prices of hops. And I am also of opinion (though that opinion must be modified by other conditions, such as a bad crop of barley in one year or a good crop in another) that the price of barley is liable to be seriously affected by a very high price of hops. It has appeared in evidence before this Committee that three times since 1840 nearly 20 *l.* or more than 20 *l.* per cwt. has been paid for hops, and, within that period, three times we have paid 22 *l.* per hundredweight for hops; that is to say, in the year 1840, in the year 1853, and in the year 1854. Moreover, as it would appear, from the unanimous opinions expressed before this Committee, that the hops grown in foreign countries are of a quality very superior to any grown in England, it would be impolitic and improper to withhold from the British consumer the freest access to the best article. And it has been also asserted, and my own experience justifies it, that even in those very productive years which we have just experienced, such as 1855 and 1856, as those years produced an unusually small proportion of fine hops, there has, notwithstanding the low prices, been a considerable importation of the very fine qualities of Bavarian and Bohemian hops. In the year before last I was in attendance, at Paris, at the Exposition of Agriculture, when the agricultural produce of nearly all the countries of the globe was submitted for comparison to the spectators, and the right honourable gentleman who now fills the chair of this House was kind enough to show me the various samples of hops that had been sent there for exhibition and for competition, and he did me the honour to present me to a gentleman who was one of the judges in that exhibition, and who had been one of the judges for hops. He showed me the various qualities of hops, and he showed me that, in the competition, the English hops

M. T. Bass, Esq., M. P.

23 July 1857.

hops stood sixth in point of quality. I am not perfectly certain; I know they were either fifth or sixth, but I think they were sixth. It may interest the Committee if I were, as far as I can recollect, to name the order in which the various qualities stood as regards excellence. Bohemia was the first, and that answered to my own personal experience and judgment. Bavaria was the second, and to that I also assented as the characteristic of the hops of that country. Baden was third. Belgium was fourth. France fifth, and England sixth. Now I was unable to ascertain what was the growth of the English hops, and if it represented the general character of England as a producer of hops, and therefore am unable to state whether or not it was a fair representation of the highest quality of English hops. But whatever that growth might be, it is quite clear that England stood very low in comparison with other countries; and therefore that strengthened the conviction which I had long entertained that it is prejudicial to the interests of this country that it should be excluded from the use of the finest qualities of hops that can be produced. There has been a point of much interest raised before this Committee as to the effect which the prices of hops might have upon the prices of barley and upon the malt duty. I think I have before stated my impression that the prices of barley are often very materially reduced by excessive prices of hops, and that the amount of duty on malt is also very often reduced by extreme prices of hops. If the Committee will ask me any question with reference to various years, I should be glad to give them such information as seems to present itself upon that particular topic. With regard to free trade in hops, my opinion is clearly that it is desirable for the country that certain classes of English growers would for a time, at least, be prejudiced by free trade, but that the great mass of growers would not be prejudiced by it. I think that the growers of Sussex and the Weald of Kent would be very little, if at all, affected by the introduction of free trade with regard to hops. I am persuaded that one result would be a great increase in the consumption, and that the only growers whom I can suppose would be prejudicially affected by the free introduction of foreign hops would be those growers who affect to send the highest quality to this market, namely, certain growers in East and in Mid-Kent; and, unquestionably, I am of opinion that their great profits, of which we have heard so much, would at least for a time be materially interfered with; but that result would not for a moment deter me at any rate from going into free trade. With regard to the quantity of labour which it has been attempted to show the Committee would be thrown out of occupation, I think that misapprehensions have prevailed very generally. In the first place, though it would be to some planters a material depreciation of price, I do not believe that there would be a material reduction of the acreage under hop cultivation in this country, because I believe that those growers who would be most affected have had a very profitable trade, and that they can afford a diminution of price, still keeping the cultivation up; and, as I said before, I do not think that the general growers of Sussex, of the Weald of Kent, of Herefordshire, and of a great part of Worcestershire, excepting under extreme prices, such as occurred in 1854, would be appreciably affected by the introduction of free trade in hops. Now, the Committee will be pleased to observe what proportion the growth of hops bears, even in hop counties, to the general cultivation of those counties; and I think they will find that in the county of Kent, which has close upon 1,000,000 of acres, there is less than three per cent. of the ground under the cultivation of hops. I think it is under 30,000 acres.

7169–79. Mr. *B. Hope.*] Must you not add the underwood to that?—No doubt that would be materially affected. In Sussex you will find that it is very materially less; it is scarcely one per cent.

7180. May we not throw West Sussex out of the account?—I was speaking of it as a county which is well known as a producer of hops. I find in Sussex that the acreage is between 900,000 and 1,000,000, and the hop land under cultivation is about 10,000. Therefore the Committee will find that there is only one acre in 100 under cultivation of hops. In Worcestershire and Herefordshire, I think, they have between 7,000 and 8,000 acres under hop cultivation, on an acreage of about 900,000; consequently, it would be less than one per cent. under cultivation of hops. Now I have before endeavoured to show to the Committee, by the examination of various witnesses, that the quantity of barley that may

M. T. Bass, Esq., M. P.

23 July 1857.

be computed as the average production in this country is at least 8,000,000 of quarters; we shall find that the consumption of malt has gone up as high as 44,000,000 of bushels, which represents 5 ½ millions of quarters of barley; and taking what is known to be consumed in the manufacture of spirits, and what is used for various other purposes, such as the feeding of cattle and pigs, and sometimes for bread, it is not an extreme calculation to say that we produce 8,000,000 of quarters of barley, which annually require 2,000,000 of acres for their production; and as barley is only grown once in four years, it becomes clear that 8,000,000 of acres are concerned in rotation in the production of barley. It seems to me therefore unreasonable that the supposed interests of the cultivators of 50,000 acres of hops should be maintained to the prejudice of the cultivators of 8,000,000 acres of barley. One word with regard to labour. I find, according to the calculations admitted by Mr. Darby, that an amount of personal labour, equivalent to 25,000 men, is engaged in the cultivation of hops. Doubtless it might be presumed that to remove altogether that labour from its present occupation would lead to very great distress for the moment; but I do not apprehend that there will be any serious reduction. And with regard to the value of agricultural labour now, I find there is such a demand for it that I do not apprehend that there would be the slightest doubt that any quantity of labour that would probably be thrown out of employment by any conceivable diminution in the cultivation of hops will be absorbed, while there is so great a demand for labour.

7181. *Chairman.*] Have you any objection to tell the Committee what is your annual consumption of hops?—My concern has consumed since October last 11,000 cwt. of hops, and the price of the English hops that we have bought has been less than 5 *l.* per cwt. We have also bought a considerable quantity of Bavarians in the spring of this year, and those have cost upon the average about 6 *l.* 12 *s.* per cwt. We attempted to buy Bavarian hops in the autumn of last year, there having been a remarkable scarcity of good English hops; but the price that we were asked was 9 *l.* per cwt. nearly up to Christmas, and then I think it was reduced to 8 *l.* Up to December last we were unable to buy a single Bavarian hop on account of the high prices. After the Bavarian brewers and buyers had supplied themselves there was still a surplus left, and we had an opportunity of going into the market upon more favourable terms; and we have bought a few thousand cwts. of hops, something under 3,000, at an average price of 6 *l.* 10 *s.* or 6 *l.* 12 *s.* per cwt.; and we are holding now a considerable quantity for yearlings, because, as has been before stated to the Committee, we find the Bavarian yearlings deteriorate to a much smaller extent than the East or Mid Kent hops.

7182. What sort of English hops do you buy?—We buy principally the best quality from Mid and East Kent. I believe that since I have been concerned in the trade, which is now nearly 40 years, we have never used a pocket of Sussex hops. We use a few of the finest Worcester hops in the beginning of the season. Mr. Smith, who gave evidence before this Committee, has attained the production of fine Worcestershire hops, and we buy his hops almost every year, and a few other selected samples of Worcester hops.

7183. Do you consider his hops a particularly good specimen?—I think it a superior specimen of Worcestershire hops.

7184. Would you consider his hops an average specimen of Worcestershire hops?—By no means; I should say they were at least 25 per cent. better than Worcestershire hops in general.

7185. Mr. *Brand.*] Will you inform the Committee what proportion of hops are used in brewing different varieties of beer?—My opinion agrees with what has been generally stated to the Committee, that for common beer the average quantity used would be as much as from eight to 10 lbs. of hops to a quarter of malt; but that for pale ale, and every superior quality of beer, very often as much as 18 lb. is used per quarter.

7186. Does beer for exportation generally contain a large portion of hops, or otherwise?—Always a large portion; it is indispensable.

7187. What number of pounds per quarter should you say was used in them?—There is a class of beer that is exported which requires from 16 lbs. to 18 lbs. a quarter; strong beers for export do not take so much.

7188. I see that in the year 1856 the value of beer exported amounted to a million and a half of money; could you form any opinion as to the quantity of

of hops embraced in that exportation?—I take it that you may put it down at 700,000 barrels, and the quantity of hops used is not quite 5 lbs. a barrel, so that I think you will find that that will come to about 3,500,000 lbs. weight of hops. I beg to observe to the Committee that there is no drawback whatever allowed upon that; so that upon this 3,500,000 lbs. of hops exported in the shape of beer, the brewer has paid 2 *d.* a pound upon them for which he has not got a penny back in the shape of drawback. There is the drawback upon the malt, but on the hops there is none whatever.

7189. Sir *Edward Dering.*] There is no drawback upon hops when manufactured?—No.

7190. Mr. *Brand.*] Has exportation largely increased of late years?—Yes.

7191. Do you anticipate a further increase?—I have no doubt of it. We have received orders from Australia for double the quantities received last year.

7192. Does that observation apply to other concerns besides your own?—To a certain extent. We have the good fortune at this moment to stand rather well in foreign markets, but I should think there is a general increase in the foreign demand.

7193. Are you exporting beer to foreign countries as well as to our own colonies?—Yes; there is a considerable export to Paris, and some also to the United States; some to the Dutch settlements in India, under very heavy duties, and some little up the Rhine to Germany.

7194. Mr. *W. Martin.*] Do our own East Indian settlements take a great deal?—They take a certain quantity, but nothing in comparison to the Australian colonies.

7195. Mr. *Brand.*] Do you export beer up the Rhine to compete with the Bavarian beer?—I do not think it is for that purpose; it is sent rather to supply the English tourists who go up the Rhine.

7196. *Chairman.*] You have said that at Paris, in the Exposition, English hops were placed behind Belgian hops; what class of English hops were they?—I do not know.

7197. Have you ever seen Belgian hops in England?—I have used them.

7198. Were they Popperingue hops?—Yes.

7199. Mr. *Brand.*] Do you think, from your experience, that the English hops are inferior to the Belgian hops?—I think the ordinary run of English hops are inferior to the finest Belgian. I do not attach very great importance to the result of the Paris Exposition, because I do not believe that England was fairly represented there.

7200. *Chairman.*] Did any other countries exhibit?—Yes, America and Canada, and I think Poland; but I cannot speak exactly upon that. Allow me to explain with regard to Farnham hops. We find that Farnham hops are very rarely brought into the general trade of the country, but they are principally used in the country where they are grown, and where there is a preference for them. I believe that at Weyhill Fair, which is a famous fair that takes place in the month of October, the highest quality of those that are grown in the town of Farnham fetch a higher price than any other hops.

7201. Do you never use them?—Never. We tried the experiment, and the conclusion we came to was that the East Kent are very superior.

7202. Mr. *Brand.*] Is it your practice to mix the Bavarian hops with the British grown hops, or do you use the Bavarian hops alone?—We generally mix them; not that we should object to use Bavarian hops alone, but it suits us to mix them with other hops. It is advantageous in this way, that we have paid this last year a much higher price for Bavarians than we have for any English hops, and it would be a little too costly to use exclusively Bavarian hops.

7203. Putting the element of price out of the question, should you prefer using Bavarian hops?—Yes.

Jovis, 30° die Julii, 1857

MEMBERS PRESENT.

Mr. Bass.	Mr. Beresford Hope.
Mr. Beach.	Mr. Knight.
Mr. Brand.	Mr. John Locke.
Sir Edward Dering.	Mr. Wykeham Martin.
Mr. Dodson.	Viscount Pevensey.
Mr. Hanbury.	

JOHN GEORGE DODSON, Esq., IN THE CHAIR.

Samuel Lancaster Lucas, Esq., called in; and further Examined.

S. L. Lucas, Esq.

30 July 1857.

7204. *Chairman.*] HAVE not you a statement which you are prepared to make to the Committee about the growth of hops abroad?—Yes. In the first place, there is a district in Bavaria called Spalt, which is, as it were, the metropolis of hop-growing. The finest and best hops are there produced, and I am going to give, first, the cost of production in Spalt, and the average value for that particular land in Spalt city.

7205. Will you hand that in?

[*The same was handed in, and is as follows:*]

Spalt City.	*Fl.*	*kr.*
Value of freehold, 1,350 fl.; interest on	67	30
Cost of poles per 100, 17 fl.; 2,100 to the morgen, 357 fl.; interest on	17	51
Cost of replacing one-twelfth each year	29	45
Manure	69	–
Tithes and taxes (about)	2	–
Labour before picking	35	–
Cost of raising plantation, say 100 fl.; interest on	5	–
Cost before picking *Fl.*	216	6
Picking, drying, and packing per centner, 10 fl.; average crop, 4 centners; cost on a morgen	40	–
Fl.	256	6
Cost per centner *Fl.*	64	1½

Cost per English acre, being one-fifth larger than the Bavarian morgen before picking, 21 *l.* 11 *s.* 8 *d.*

Average cost of the production of a centner of hops, including all expenses up to the time of sale to the merchant, *Fl.* 64. 1½, or per cwt. English, 4 *l.* 16 *s.*

7206. Mr. *Brand.*] Can you give the Committee a statement of the average production of these districts?—Yes. With regard to the number of acres, it seems to me that there are many different estimates. I have made an estimate which is the average of several estimates; I conceive that with regard to the number

number of acres, it is doubtful; but that with regard to the number of hundredweights grown, I think that we may come pretty near.

7207. *Chairman.*] Have you been in Bavaria yourself?—Yes; I went with a view to get this information.

7208. How did you obtain this information?—I obtained it by travelling about and applying to various persons, farmers and others.

7209. Are there any Government statistics?—No; I could not find any, except about the malt tax, which gives an approximation to the consumption. Then I have a statement with regard to Spalt country, which is a much larger district than Spalt city.

7210. Will you hand that statement in?—

[*The same was handed in, and is as follows:*]

SPALT COUNTRY.

Yearly Expense per Morgen.

		Fl.	*kr.*
Value of freehold per morgen, 225 fl.; one year's interest on, for rent		11	15
Poles, at 13 fl. the 100, 2,000 to the morgen, 260 fl.; interest on		13	–
Cost of replacing 1-10th each year		26	–
Cost of raising plantation, say 100 fl.; one year's interest on		5	–
Manure		10	–
Labour before picking		9	13
Tithes and taxes under, but say		2	–
Cost before picking	*Fl.*	76	28
Average crop, 4 centners per morgen; cost of picking, drying, and packing, per centner, 7 fl.; cost on a morgen		28	–
	F.	104	28
Cost per centner	*Fl.*	26	7

The Bavarian morgen being one-fifth less than an English acre, the cost per acre would be 7*l.* 12*s.* 7*d.* before picking.

Average cost of the production of a centner of hops, including all expenses up to the time of sale to the merchant, *Fl.* 26. 7., or, per cwt. English, 1*l.* 19*s.* 11*d.*

7211. Are those the prices for last year?—They are no prices at all; they are the average cost of production upon the average of years; it is what they cost, irrespective of price altogether. We went to different people and asked them what it would cost them upon the average of years to farm their land, and they gave us answers to the best of their ability, and we took the average of those answers. That seems to me to be the right way to set about it.

7212. Mr. *Knight.*] Are not they perfectly similar to the estimates of the cost of production which have been given us by English hop growers?—I thoroughly understand the cost of the British hop-growing, and I wanted to ascertain how that tallied with Bavarian hop-growing.

7213. Are not those estimates precisely similar to those prices which have been given to the Committee by the Weald of Kent, the Worcestershire, and the Kentish hop growers?—Yes; they are done upon precisely the same principle. I have a statement here relative to Hersbruck city districts, where they grow hops of rather an inferior character; there are some good hops, but they grow a much larger quantity per acre; they manure more highly. I should observe with regard to the estimate which I have made of the rent of land, that land is rarely let; when it is, it is either the property of the commune, or if some man dies, his widow lets it for a year or two.

7214. *Chairman.*] Will you hand that statement in?—

[*The same was handed in, and is as follows:*]

S. L. Lucas, Esq.

30 July 1857.

HERSBRUCK CITY.

	Fl.	kr.
Value of freehold, 1,100 fl.		
Where land let, it ranges from 40 to 70 fl. a year; average of each	55	–
Cost of poles, per 100, 24 fl., 1,650 to the morgen, 396 fl.; interest on	19	48
Cost of replacing 1–16th each year	24	45
Cost of raising plantation 100 fl.; interest on	5	–
Manure	40	–
Tithe and taxes, under, say	1	–
Labour before picking	30	–
Cost before picking Fl.	175	33
Picking, drying, and packing, per centner 10 fl.; average crop, 6 centners; cost on a morgen	60	–
Fl.	235	33
Cost per centner Fl.	39	15

Cost before picking, per English acre, being one-fifth larger than the Bavarian morgen, 17 *l.* 11 *s.* 1 *d.*

Average cost of the production of a centner of hops, including all expenses up to the time of sale to the merchant, *Fl.* 39. 15, or, per cwt. English, 2 *l.* 18 *s.* 7 *d.*

7215. What is the next statement which you produce to the Committee?—I have a statement of the Hersbruck district, round about the city. It is a considerable district, and produces a considerable quantity of hops.

7216. Will you hand that in?—

[*The same was handed in, and is as follows:*]

HERSBRUCK DISTRICT.

	Fl.	kr.
Value of freehold, 450 fl.; interest on	22	31
Cost of poles per 100, 26 fl., 1,500 to the morgen, 390 fl.; interest on	19	30
Cost of replacing 1–30th each year	13	–
Cost of raising plantation 100 fl.; interest on	5	–
Manure	52	30
Tithes and taxes about	–	30
Labour before picking	20	–
Cost before picking Fl.	113	–
Picking, drying, and packing, 10 fl. per centner; average crop, 7 centners; cost on a morgen	70	–
Fl.	183	–
Cost per centner Fl.	26	9

Cost per English acre, being one-fifth larger than the Bavarian morgen before picking, 11 *l.* 5 *s.*

Average cost of the production of a centner of hops, including all expenses, up to the time of sale to the merchant, *Fl.* 26. 9, or, per cwt. English, 2 *l.* 0 *s.* 8 *d.*

7217. What is your next statement?—The next is the Aischgrund, which is a district where there are also some large fields of hops; they are rather expensively cultivated; and there is also some ground where they are not so expensively cultivated. We have taken the more expensive system, because we could not tell how much there was of each, and I was anxious to take it as fairly as I could.

7218. Will you hand that in?—

[*The same was handed in, and is as follows:*]

AISCHGRUND.

	Fl.	*kr.*
Land let at 40 to 50 fl.; freehold worth 850 fl.; interest on	42	30
Cost of poles per 100, 23 fl.; 1,350 poles, 310 fl. 30 kr.; interest on	15	30
Cost of replacing 1-14th each year	22	6
Cost of raising plantation, 100 fl.; interest on	5	–
Manure	60	–
Tithe and taxes	1	–
Labour before picking	25	–
Fl.	171	6
Cost of picking, drying, and packing, per centner, 8 fl.; cost on a morgen of an average crop of five centners	40	–
Fl.	211	6
Cost per centner *Fl.*	42	13

Cost before picking of an English acre being one-fifth larger than the Bavarian morgen, 17*l.* 2*s.* 2*d.*

Average cost of the production of a centner of hops, including all expenses up to the time of sale to the merchant *Fl.* 42. 13., or, per cwt. English, 3*l.* 2*s.* 8*d.*

7219. Have you any other statement to hand in to the Committee?—I have a statement relating to Holetau; that is a district near the Danube.

7220. Mr. *Bass.*] Did you go to Holetau?—No; I went there in 1852.

7221. Did you make inquiry there?—I made some inquiries, but this is not the result of the inquiries I made then; I got persons from there, and examined them. We were not able to go to Holetau; we should not have had time.

7222. You went to Aischgrund?—Yes; with regard to Holetau, I am quite as satisfied with the estimate of the cost of production which I am about to give, as I should be if I had been there lately, because I find it tallies very much with what I found when I was there in 1852, and I have no doubt of the respectability of the people who gave it me.

7223. *Chairman.*] Will you hand it in?—

[*The same was handed in, and is as follows:*]

HOLETAU.

	Fl.	*kr.*
Value of freehold, 350 fl.; interest on	17	30
Cost of poles per 100, 10 fl.; 1,500 on a morgen, 150 fl.; interest on	7	30
Cost of replacing 1-17th each year	8	50
Cost of raising plantation, 75 fl.; interest on	3	45
Manure	25	–
Labour before picking	18	–
Tithe and taxes	1	–
Fl.	80	35
Average crop 6 centners; cost of picking, drying, and packing per centner, 7 fl.; cost per morgen	42	–
Fl.	122	35
Cost per centner *Fl.*	20	16

Cost before picking of an English acre, being one-fifth larger than a Bavarian morgen, 8*l.* 1*s.* 2*d.*

Average cost of the production of a centner of hops, including all expenses up to the time of sale to the merchant, *Fl.* 20. 16, or, per cwt. English, 1*l.* 10*s.*

7224. Is there any other district with respect to which you have a statement of the cost of production?—Those are all the costs of production that I have to give you; now I will give the expenses upon a cwt. English of hops, from the time of the sale to the merchant, to its delivery in the bonded warehouse in London.

S. L. Lucas, Esq.

30 July 1857.

7225. Mr. *Brand.*] To what district does that apply?—It is the average of all the Bavarian districts; that is to say, some that are near Nuremberg would cost a little less, and some that are a considerable distance would cost more; this is the average. We took those expenses out of the books of a merchant.

7226. *Chairman.*] Will you hand it in?—

[*The same was handed in, and is as follows:*]

EXPENSES upon a Hundredweight, English, of HOPS, from the Time of Sale to the Merchant to its Delivery to a Bonded Warehouse in *London.*

	Fl. kr.
Cost of transit from the place of production to Nuremberg, per centner	1 12
Redrying, repacking, &c., for the English market, per centner, including cost of cloth	2 30
Loss in weight by redrying, eight per cent., say at 60 *fl.* the centner in price	4 48
Merchant's profit, supposing, per centner	3 –
Cost of transit from Nuremberg to Hamburg, per centner	3 –
Expenses there	– 30
Freight to London	1 –
Landing, &c.	– 30
Fl.	16 30

Total cost per centner, 16 *fl.* 30 *kr.*, or, per cwt. English, 1 *l.* 4 *s.* 7 *d.*

7226.* Have you anything further to offer to the Committee?—There are some few observations that I have jotted down which I thought might be interesting to the Committee. There are in Bavaria about 33,000 morgen of hop land, producing about 148,000 centners. The number of English acres is 26,400, and that of English hundredweights is 167,000. About 40,000 centners, or 45,000 cwts., are yearly consumed in Bavaria. In Bohemia, the production is about 60,000 centners, or 67,500 cwts. Bohemia consumes, with all Austria, about as much as Bavaria, 45,000 cwts. English. There are therefore, upon the average of years, about 144,000 cwts. English grown in those countries more than are consumed. The continental brewers buy a large proportion. But it is thought by persons well acquainted with the trade, that from 30,000 to 40,000 cwts. can readily be sent to England. About one-fifth of the hops of Bavaria are grown in what are called the city districts, at a very considerable cost. This cost is principally occasioned by the high price of land; labour is also dearer to the extent of at least one-third, and in the city districts more manure is also used than in the country. The highest price of land in Spalt city is 1,500 florins per morgen, or 150 *l.* the English acre. The land in the city districts is nearly all in hop cultivation, and therefore the plantation cannot be much increased. The increase of the plantation must be looked for principally in the country districts, where the hop land does not exceed 35 *l.* an acre in value, and land quite fitted for hop cultivation cannot be bought for 20 *l.* an acre. One-third of the whole growth of Bavaria is produced in the Holetau district, at a cost of 1 *l.* 10 *s.* per hundredweight English. The production could, in the opinion of the best judges, be doubled in a very short time in those districts. In Spalt city, Hersbruck city, and some of the most valuable and highly cultivated districts in the Aischgrund, about 35,000 cwt. are produced, at the cost, on an average of the three, of 3 *l.* 12 *s.* per hundredweight. The remaining 80,000 cwts. are produced at a cost, upon the average, of 1 *l.* 19 *s.* 10 *d.* per hundredweight. The system of cultivation in Spalt city is in every respect equal, if it is not superior, to the English method. I do not think many, if any, Spalt hops ever come to England. Horse labour is not used. The houses in all the hop districts are built upon a peculiar plan, which fits them for conversion into English oasts at a small cost. The dwelling is upon the ground and first floor, and the roofs are very high and sloping, and contained three or four floors, where hops are now dried by the action of the sun and air. These floors are exactly like the cooling room of an English oast, and require nothing but the addition of a kiln to make them perfect oast-houses. There are now, in various places in the hop districts, about 100 kilns, which are constructed upon so wretched a principle that I am sure they must injure the hops. They are never used if the

the weather is good. They cost, in some places, 200 florins, or 16 *l.* 16 *s* 8 *d.*, in others, 150 florins, or 12 *l.* 10 *s.* The first was erected in 1845, so that it shows they are becoming sensible of the value of kilns in hop cultivation in that country. Charcoal is plentiful and cheap. I think, should the country plantations increase, the produce per acre would also increase. In some places, where the gardens are small and the situation exposed, the wind seems to do damage. The plantation has increased of late years and is evidently increasing. The general opinion in the country seems to be that a very considerable extension would be easily made. I heard no reason, except a fear that corn would be difficult to import, why it should not be almost unlimitedly enlarged. The farmers seem to doubt how they should get corn if they grew so many hops. It is quite clear that there is in Bavaria land enough fitted for hops to produce, if it were planted, enough for the entire consumption of Europe. I do not think it probable that this will ever happen, but I say it to show my conviction that there is abundance of good hop land in the country. I think, when Holetau hops become known in this country, that there will be a great demand for them, and the plantation will much increase. Hops from this district can, with a good profit, be delivered in London, with the existing duty paid, for 6 *l.* per cwt.; I believe them to be equal to our best hops. I am most strongly impressed with the capacity of this Holetau district for hop growing; I saw it in 1852. Twenty years ago the production there did not exceed 5,000 cwts., it is now at least 55,000. At least one-third of the growth of Bavaria is the growth of Holetau; about 160,000 cwt. I believe are produced in Bavaria. The Government appoint an official, called a weight master, who seals and marks the hops, and gives a certificate that they are the genuine produce of the particular district. This costs about 3*d.* per cwt. The mark is affixed at the grower's option. Very heavy penalties are attached to frauds; that is to say, there is such an individual to be found in every district, but it is not necessary for the planters to go to him unless they choose. I may also state, that we examined a man who was a brewer and a hop farmer, and I will read to the Committee what he said.

7227. Mr. *Bass.*] Where was that?—At Hersbruck; Mr. Charles Zeltner was his name; his evidence is this: "For best beer, the difference in value between new and yearling hops is 50 per cent. in his estimation; and then even he prefers the new. For the second quality of beer, new hops are one-fifth better than yearlings, but in all cases new hops are decidedly to be preferred; his beer is brewed as store beer. He uses for best beer about 5 lbs. of hops to one scheffel of malt; and these are always new hops. For second quality beer, in all cases 2 lbs. of hops to one scheffel of malt; the hops in this case are one-fifth yearlings, and the rest new. Of best beer, seven eimers are obtained from one scheffel of malt; of the second beer, $7\frac{1}{2}$ eimers from one scheffel; the difference of quality is less in strength than capacity for keeping. One scheffel of malt pays five florins six kreutzers duty. He believes the malt tax does not affect the consumption of beer. He prefers sun-dried to kiln-dried hops, and thinks that the aroma is lost by the action of the fire. He has used Belgian, Bavarian, and Bohemian hops, and prefers Bohemian hops for beer to be consumed quickly, and Bavarian for store beer. Upon beer to be exported there is a drawback of 40 kreutzers the eimer; the drawback is paid about six months after the beer is exported; the duty upon malt is paid once a quarter, and the duty is charged upon the malt when it is brewed; notice is obliged to be given to the officers before brewing. Malt for other than brewing purposes pays no duty. The consumption of beer increases in this country. He considers the seal upon the hops a great advantage to brewers who do not live in hop districts; those in the districts he believes to be better acquainted with the quality of the hops; buys five sorts of hops, Holetau hops, Bohemian hops, Spalt hops, Hersbruck hops, and Schwetzingen hops, and mixes them together, and he believes this to be the best plan, as hops possess different valuable properties, all of which are secured by thus mixing; he does not mix for cheapness, but to produce the best article; he can buy new hops to brew with at the end of August or the beginning of September in small quantities, but does not think it desirable to buy them so soon; in his opinion an increased demand would at first raise prices and afterwards increase the plantation. He thinks that the plantation could not readily be increased more than 25 per cent., labour not being abundant, and corn having to be grown for the subsistence of the residents. His father grew hops from 1821 to 1851, and averaged four centners

S. L. Lucas, Esq.

30 July 1857.

the morgen, and made an average price of 58 florins 20 kreutzers a centner." There is another man, whose name is Mr. Frederick Loos, who is a hop grower at Hersbruck; he says, "There are a few hop gardens let at from 40 to 70 florins a year; the land let belongs either to the church or to corporations. Freehold hop land is worth from 1,000 to 1,200 florins the morgen. There are from 1,500 to 1,800 poles on a morgen; they cost from 20 to 28 florins the 100, and are from 30 to 36 feet high. Last year they cost 32 florins per 100. This price was occasioned by a large increase of plantation. There is plenty of wood in the district, but it is not cheap. Poles last from 12 to 20 years. Twenty two-horse cart loads of manure are put upon the morgen of hop land every two years, at a cost of four florins the load. There is no special tax upon hop land. The land-tax is 30 kreutzers the morgen upon all land; tithe is at Lauf. A good crop is eight centners the morgen; a moderate one six. The land is not suited for the choicest hops. The largest plantation is 28 morgens. Plantations range from half a morgen to 20 morgens. Hop farmers have capital. In fine weather hops are dried in the sun, and in wet, on a kiln, at an extra cost of 2 ½ florins the centner. There are more than 100 kilns in the district, and they cost 200 florins each; the first was put up in 1845. A centner of hops costs on the average 43 florins to produce, including all expenses, and the average price for the last 30 years has been 60 florins the centner."

7228. Mr. *Bass.*] That is 87 *s.* a cwt. upon the average of 30 years?—Yes; that is to say, it is so in his opinion. It costs the farmers 43 florins a centner to grow their hops, and they realise 60 florins per centner, therefore the profit is 17 florins; therefore they have made a good profit.

7229. Mr. *Brand.*] Are you speaking of a particular district?—Yes; this is a man from Hersbruck city; then he goes on to say, "Sealing and marking hops is optional, and costs 6 kreutzers the centner. A centner of hops in the country district costs 25 florins to produce." Therefore, in the opinion of this man there is a difference of 30 florins in the cost of production of a centner of hops between the district within the town and the district outside. "One-third of the Hersbruck district is within the town, and the rest in the country district. The plantation has increased about one-ninth in the last three or four years, and will continue to do so as long as there is a good market for hops." Then with regard to the average prices in the district, we were recommended to a merchant, and I thought it desirable to ascertain whether he was a respectable person, and therefore I went to the burgomaster of the town in which he lived, and got a certificate to that effect, and the Committee can see it if they like. That was at Furth, near Nuremberg.

7230. Mr. *Bass.*] He was a Jew?—Yes; but I do not know that a man is considered any the worse for that.

7231. What was his name?—His name was Uhleman.

7232. Is he a hop merchant?—Yes. I will read you a translation of what the magistrate said about him. Mr. Lancaster Lucas and Mr. Parkes, of London, have been here, and have made statistical inquiries about the cultivation and growth of hops, and generally about the hop trade, of M. Uhleman, of this city. This house is well known as a solid, sterling, and honourable house, and the reforeany information that the house gives is, according to the conviction and experience of the magistrate, to be depended upon for accuracy, and may be received without hesitation, as serving the purpose for which they have come. The result of his information is embodied in the following table:—

AVERAGE PRICE of HOPS grown in *Bavaria.*

	£.	*s.*	*d.*			£.	*s.*	*d.*	
1837	3	15	–	per cwt. English.	1847	1	15	–	per cwt. English.
1838	7	–	–	„	1848	2	2	–	„
1839	2	10	–	„	1849	8	15	–	„
1840	5	5	–	„	1850	5	10	–	„
1841	4	10	–	„	1851	9	–	–	„
1842	11	10	–	„	1852	5	–	–	„
1843	3	–	–	„	1853	3	18	–	„
1844	9	10	–	„	1854	14	–	–	„
1845	3	15	–	„	1855	2	10	–	„
1846	3	–	–	„	1856	3	15	–	„
Years, 20				£.110.	Average price				£.5. 10*s.*

Now

Now, Mr. Uhleman gave us his opinion about the relative quality and the relative price of the various sorts of hops: he said, Hersbruck hops are about the medium quality, and the Spalt hops are worth about one-fifth to one-third more, in price; Holetau hops are decidedly superior to Hersbruck hops: and Forcheim, Bamberg, and other inferior hops, are worth about one-third less than Hersbruck hops in price. The yearling hop is worth about one-third less than the new hop of the same quality, supposing the prices in both years to range about the same; Bohemians vary in price in the same way as Bavarians, the Saaz hops equalling the Spalt in price. There are more of the better sort of hops in Bohemia than in Bavaria." When we asked him some questions about other foreign hops, he said that Brunswick hops are about half the price of Holetau hops, and in very little repute.

S. L. Lucas, Esq.

30 July 1857.

7233. *Chairman.*] Are those the prices paid by the merchant to the grower? —From the fact that he referred to his books for the prices in one or two years, I infer that they were the prices at which he sold to the brewers. He further said, "they grow about 15,000 centners per annum. Baden hops rank as high as the Spalt hops, but they are all consumed in Baden and Wurtemburg, and are but little exported. They grow from 15,000 to 18,000 centners in a good crop. The ground there is dear, and the tobacco cultivation pays better. Russia grows a few of an inferior sort, and has to import for her own consumption. Messrs. Uhleman do not know much of the Russian growth." Prussian-Polish hops rank in price about the same as Hersbruck. They grow about 25,000 centners. I think that is all that he said about other hops besides Bavarian. Mr. Uhleman further said, only two oasthouses had been built in Bavaria after the English plan, and both of those are the property of merchants, and are used for redrying hops. There is one oast upon the Belgian principle, which is also in Nuremberg. The Government of this country has never prohibited the export of hops even in years of great scarcity, and there is no reasonable probability of their so doing. Hops entering Bavaria pay a duty of five florins a centner, or thereabouts. No great bulk of hops could be delivered into England before the 1st of October, but a small quantity might be sent. Hops would take 18 days in transit, &c., from the place where grown in Bavaria to the port of London, upon the average. This includes the time occupied in redrying, &c., in Nuremberg. The general average of the rate of interest in this country is four-and-a-half or five per cent. It is higher just now. The proportions of the whole plantation in Bavaria are about four-fifths in the country, and one-fifth in the town districts, and the cost of cultivation is about one-third more in the town than in the country, as you will find by the statistics. We found a difficulty in getting statistics; and we found a gentleman who had been a member of the Chamber of Deputies; and as he was a person likely to give us information, we went to him. His name is Dr. Morgenstein, formerly a member of the Chamber of Deputies. He said, The malt duty in Bavaria amounts yearly to between 5,000,000 and 6,000,000 florins. Five florins the scheffel is the amount of the tax. He believes about four or five pounds of hops are used to the scheffel of malt. The malt duty has not increased the last four or five years in total amount. The price of beer is fixed by the Government, and the brewer does not much care what he pays for malt and hops, as their cost is made the basis of the fixed price of the beer. The brewers, in the month of November, are obliged to show their books to the government officers, and the price of beer is fixed by them, according to the average price paid for malt and hops. There are laws in Bavaria prohibiting marriage until a certain amount of property has been acquired, or a certain income can be obtained, which tend to check an increase of population, and consequently of consumption of beer. One-third of the whole area of the country is in woodland. Then we got some information from one of the M. Uhlemans, Mr. Moritz Uhleman, of Hamburgh, about the Bohemian hops. He had just come from Bohemia, and for that reason I selected him, because he had been in the district, and had just at this moment come from there. He says he thoroughly understands all about the Bohemian hop district, and has frequently been there, and has just returned. He considers the Bohemian hops superior to the average of Bavarians. The cost of production is about the same, except the poles, which are one-half cheaper. The prices of Bohemian and Bavarian hops range about the same. The quantity grown, per morgen, is about six centners. An average crop for this country is about 60,000 centners; that year the crop is estimated at 70,000 centners. The plantation could readily be increased more than

S. L. Lucas, Esq.

30 July 1857.

half, Bohemia is admirably adapted for the growth of hops. There is not so much beer consumed in Bohemia as in Bavaria. Austria usually consumes 40,000 centners of hops yearly. There is an import duty of three Austrian guldens (the Austrian gulden is 2*s.* English) per centner upon foreign hops imported into Bohemia, or any part of Austria. Messrs Uhleman have an establishment at Hamburgh, which is a free port, and by sending thither, in transit, hops other than Bavarians which they may have purchased, they are enabled to dry them, and repack them in bales there for export, and thus avoid the payment of the duty which would be otherwise incurred.

7234. Is there no transit duty on Bohemian hops exported through Hamburgh?—No; if they buy the Bohemian hops and bring them to Bavaria, and redry them, they would be charged 5 florins; whereas, if you bring it in transit to Hamburgh, you avoid that. I think it right to tell the Committee that I conceive the Bavarian hops are decidedly of a good quality, the very best of the sort to my knowledge; but Mr. Parkes, who is a hop factor in the Borough, and went with me, will give the Committee more precise information upon that point. I believe that in the Holetau district, which contains 900 square miles of land altogether, one-third of which is in wood land, there are 600 square miles of country which are able to produce hops, which can be delivered, with the existing duty paid, in this country at 6*l.* a hundredweight with a good profit; that is to say: they cost them 1*l.* 10*s.* to produce, therefore give the grower 1*l.* profit, that is 2*l.* 10*s.*; then it costs 1*l.* 4*s.* 7*d.* to get them here, that is 3*l.* 14*s.* 7*d.*, and the duty is 2*l.* 5*s.*, making 5*l.* 19*s.* 7*d.*

7235. Mr. *Brand.*] When you state that the cost of bringing them here will be 1*l.* 4*s.* 7*d.* do you refer to the Holetau district?—I refer to the average of the whole of Bavaria.

7236. Would not the cost of transit and other things from the Holetau district be more than that?—I think not, they would come by railroad; there is a railroad open to the Danube; but, at any rate, the cost of transit to this country is comparatively small. Supposing you were to put up oast houses, in order to save the cost of transmission from one part to the other, and supposing you were to re-pack the hops for the English market in the Holetau itself, and put them on the railroad at any of the nearest stations, you would save a great sum.

7237. Mr. *Bass.*] Is not that estimate which you just gave the Committee totally at variance with Mr. Uhleman's estimate, and with that of Mr. Loos, the hop farmer, whose statement you read to the Committee?—The statement of the hop grower at Hersbruck referred to Hersbruck city; he did not say a word of Holetau.

7238. Are the hops from the Hersbruck city and country superior in quality to those from Holetau?—They are inferior in quality, but they cost more in production. The land costs more, and labour costs more, and everything costs more, for that hop district has been established for a long period. But the Holetau district only produced, 20 years ago, 5,000 centners, and now it produces 55,000. They are able to produce a quality of hop very little, if at all, inferior to the Spalt hops at the price of 1*l.* 10*s.*

7239. Did not Mr. Uhleman's calculation comprise the Holetau district?—He calculates the average price of getting hops to Nuremberg from various places throughout the whole of Bavaria.

7240. Will you state to the Committee how it happens that Holetau can produce hops at half the price which they can at Hersbruck?—I will read the best evidence that I could get upon the subject. I have given the cost of production; but I have not given the way at which we arrived at it. It is very clear that the growers in Bavaria have been deriving an undue profit. As regards the Holetau district, we inquired first of Mr. Rosenthall; he is not exactly from the Holetau district; but he has relations there, and he lived there during the early part of his life, and he buys their hops, and therefore we considered that he must know about them as well as anybody. I will give you Mr. Rosenthall's evidence, which I consider the best I can give. Mr. Rosenthall has bought some thousands of bales of hops in this district, and has been there frequently, and thoroughly understands the cultivation of hops there; the best hop land is worth from 300 to 400 florins the morgen; poles cost 10 florins the 100. There are 1,500 upon a morgen, and they last from 15 to 20 years; labour, before picking, costs 18 florins the morgen; picking, drying, and packing, 7 florins

7 florins the centner. The average crop is about 6 centners the morgen. The cost of raising a plantation never exceeds, in that district, 75 florins the morgen. The plant lasts 15 years. From one-half morgen to 10 morgen is the average size of the plantations. They are all choice hops in this district. The plantation has enormously increased there; the land is exceedingly well adapted for the growth of the finest sort of hops. The plantation could be readily doubled if the prices pay. There are about 900 square miles (English) in this district of land in all kinds of cultivation. They grow in this district 50,000 centners of hops nearly, or about one-third of the whole plantation of Bavaria. Now, with reference to the question of the relative expense, 1 *l.* 4 *s.* 7 *d.* is the average expense of conveying the hops from the place of growth in Bavaria to the bonded warehouse in London, and it is supposed that, inasmuch as Holetau is further from Nuremberg and some other districts, the cost of transit is more. I question whether it is cheaper to get them from Holetau or from Spalt. The only item that you have in addition is the cost of transit from the place of production to Nuremberg, which is one florin and 12 kreutzers per centner; that is, 2 *s.* Supposing you add 2 *s.* to the average cost, you only get 1 *l.* 6 *s.* 7 *d.*

7241. Have you made any calculation which will enable you to explain to the Committee why the district of Holetau is able to produce hops at half the price that the other districts require to produce them?—I think you will find that it is hardly half the price. I think you will find in the Spalt country the cost is only 1 *l.* 19 *s.*, and therefore it is only 9 *s.* more than Holetau. In Spalt town, in consequence of the high price of land and the great price of labour, the cost of production must be increased; but in regarding the country likely to grow hops, you must dismiss from your mind the town districts entirely; you may say that the town district is almost full of hops,, and therefore the cultivation, if it is to be increased, must be increased in the country.

7242. Does not Mr. Uhleman, in his account of the prices of the last 20 years, make them amount to 5 *l.* 10 *s.* the English hundredweight?—Yes; but then you should remember that, in my opinion, the brewers have been paying much too high, and that the merchants and the growers have derived an undue profit. I can only say, that when I went to Nuremberg the people there knew nothing at all about the cost of the production of hops; Mr. Uhleman himself did not know what it cost to produce the hops, and the brewers in the town districts did not know what it cost; they never inquire about it; they say there are so many hops to be got at such a price; we buy very few, and we take them at that price. But if you look at the question as a great export trade, of course if the people go on planting, the price will be forced down to its natural level; that will give the grower a proper profit upon the cost of production. And you have no right to consider the average price in former years at all; you must consider what the cost of production is, and what will be a fair profit upon that.

6243. Mr. *W. Martin.*] Did you ascertain what the average profit of the trade was?—No; and I do not suppose I should have been told.

7244. Mr. *Bass.*] Do you think it is the same with regard to the districts of Kent?—I think it is so.

7245. If the price in one country would fall, would not the price in the other?—I think we do not get undue profits in England as hop growers; I think we get honest, fair profit, and not too much. I think the Bavarians get a much greater profit, and the Belgians still greater, than we do.

7246. *Chairman.*] Did I rightly understand you to say, that you found that the people in the town knew nothing of the cost of production?—I mean to say, that that was the case with regard to the people who were not hop growers; Mr. Uhleman himself knew very little about the cost of production.

7247. How did you ascertain the cost of production?—From the growers themselves; who would one go to, to ascertain the cost, but to the man who paid it?

7248. From what number of growers did you ascertain it?—From a considerable number; indeed, as many as I could cram into the time; but I am quite satisfied that the prices I have given you as the cost of production are, if not positively accurate, yet as near as they can be arrived at.

7249. How many growers have you consulted as to the cost of each district?—I should think at least 20 altogether; we crammed as many into the time as we could;

S. L. Lucas, Esq.

30 July 1857.

could; I have given the cost of production, and therefore I do not think it is desirable to go into that with regard to each district again; but I will now read to the Committee memoranda which I made with respect to the Spalt country: The largest grower in the district farms 10 morgens; there is no other grower who farms so much. The usual size of the plantations is from half a morgen to two morgens; hops bear full crops in the second year, and continue to bear well for 12 years. Growers plant fresh land, and grub the old wherever they have room; because it improves the land. Picking begins the last week in August or the first week in September, and lasts from 14 to 21 days; eight people pick in two days one centner. Picking by the day from 5 a.m. till 10 p.m., the average earnings of each person are about 11 kreutzers. The whole family, including women and children, pick, but taking the average of the eight people it is 11 kreutzers a piece; 11 kreutzers is 3 *d.* and two-thirds of a penny. The cost of an agricultural labourer by the day is 24 kreutzers with beer and bread, or 36 kreutzers without. In Spalt city it seems that there is no hop land let. My remarks are, "The fee simple value of a morgen of hop-land is from 1,200 to 1,500 florins. Poles cost from 16 to 18 florins per 100, and they last 12 years."

7250. Mr. *Brand.*] What is the length of poles?—They seemed to me to vary from about 23 or 24 feet up to 36 feet, and they may be even taller; I think I saw some in Spalt and Hersbruck, in Hersbruck especially, that must have been uncommonly near 40 feet high.

7251. Sir *Edward Dering.*] What description of wood were they?—Generally Scotch fir; there are other descriptions of wood too, but I think the majority were Scotch firs. The people seemed to think that they were generally from 34 to 36 feet high.

7252. Mr. *W. Martin.*] Do they pick them standing, or pull the poles down?—The process of picking is this; they cut the bine as we do; when the bine is cut they strip it and take a waggon load home to the oast house, or if there is not an oast house, to the curing loft I have been describing, and there they pick the hops, and then they deposit them in little lumps upon the floor, and they spread them with a rake over the floor of the oast house. The rooms are very hot with the sun, and they get dried in about three days in fine weather and eight days in wet weather.

7253. Are the poles left standing all the winter?—No; the poles are stacked. I did not see them stacked, but it was described to me, that a part of the cost of production was the expense of taking the poles out and putting them up again, so that they are clearly taken out of the ground. There are 2,100 poles to the morgen. One three-horse load of manure is used to 80 or 100 poles per annum. One three-horse waggon load or cart load costs three florins.

7254. Mr. *Bass.*] Is that the average of the Spalt city only?—Yes.

7255. Do not they grow a great many more poles upon a morgen in the country?—They grow at various distances. I do not think that a correct estimate can be formed of the positive distances. Sometimes it is more and sometimes less. In the Spalt country they use a good many of them. "There is no special tax upon hop ground. There is a land tax varying from 20 kreutzers to one florin 30 kreutzers the morgen. The hop plantation is increasing and pays. In three years the plantation of Bavaria could be increased from a production of 120,000 centners to 400,000 centners." But the man that told us that, said that there was a possibility, but that it was not probable. I said to him, "You grow about 120,000 centners now, and we grow about 400,000; how long would it take you to grow as many as we can?" He said, "In three years, if it paid." Then I go on to say, "There is plenty of land in the neighbourhood, though not in the city district, capable of producing the best sort of hops." There are very few inferior sorts of hops in this district. They are nearly all very choice. Very great pains are taken to preserve the quality and prevent inferior sorts being grown; 10 morgens is the largest plantation in the hands of a single grower. The ordinary occupation of hop land is from one-third of a morgen to one morgen each grower. Hops bear a fair crop the second year of planting, and a full crop in the third, and continue in good bearing from 10 to 12 years; with small poles they last longer. Hops are ready for picking the 1st of September, and if injured by fire-blast they require picking earlier. Hops are stripped, bine and all, from the poles, and brought to the houses, where they are picked; when picked, they are spread thinly over floors, and

and as much as possible exposed to the sun and air. They are dried in this manner in three days in fine weather, but in bad weather will take about eight days. They are then loosely trod into coarse sacks." They told us they trod them. But the sacks did not look as if they had been trod, but they looked as if the hops had been shovelled in. Then as to the Hersbruck district, my memoranda are as follows:—"No hop land is let in this district. Hop land is worth from 100 to 800 florins the morgen; poles cost from 24 to 28 florins the 100; they are from 24 to 30 feet high. There are 1,500 poles to the morgen, and poles will last 30 years." Those poles that we saw were of an exceedingly superior description, uncommonly strong and stout. "Twelve 2-horse waggon loads of manure, value three florins 30 kreutzers each, are yearly used to the morgen; an extra manuring of 10 loads to the morgen is put on every third year. There is no special tax upon hop land; but there is a land tax upon all land in this district of three kreutzers per morgen per annum. Tithes were made redeemable in 1848 at 24 years' purchase. Everybody has redeemed. The tithe was upon a morgen about 21 kreutzers a year; 10 centners per morgen is a good crop; 4½ a moderate crop; a blight rarely occurs; not oftener than once in 10 years at the utmost. The hop plantations in this district could be tripled if high prices could be obtained. Such increase would be attended with some inconvenience, and would not readily be made. The usual size of hop plantations is from half a morgen to five morgens. The process of picking, curing, and packing is the same as at Spalt. Hops bear fairly in two years, and fully in three years, and last from 15 to 18 years in good soils, but in wet soils much less. Land is much improved for other purposes after having been in cultivation for hops, and it therefore answers to change the land planted with hops. Picking begins the last week in August or the first week in September. The hops cannot all be picked and packed before the first week in October. The plantation in this district has increased within the last three or four years about one-tenth." I have already read the evidence of Mr. Zeltner and Mr. Loos with regard to this district. I have made the following remarks with regard to the Aischgrund district: "Hop land lets for 40 to 50 florins the morgen; there is not much let. Freehold hop ground is worth from 700 to 1,000 florins a morgen. Poles cost from 20 to 25 florins the 100, and last from 10 to 18 years; there are from 1,300 to 1,400 poles per morgen; they are easily obtained: 18 or 20 two-horse loads of manure, costing three florins a load, are yearly applied to the morgen; this, however, is only the case with the rich farmers. There is no special Government or local tax on hop ground; there is a land tax of 30 kreutzers the morgen, and about as much is paid for tithes. The average size of plantations is from one morgen to 10 morgens; a good crop is six centners the morgen, and a bad one three; the picking begins the first week in September, and lasts six weeks; the crop is often spoilt by the weather before they finish the picking; the plantation has increased one-eighth since 1853, and will continue increasing so long as the price pays. Planters have their hops sealed and marked at a cost of nine kreutzers the centner. Does not consider the sealing of much value to the planters. This district grows fair hops, and is suited for the growth of the finest sorts. The plantation could be increased one-half." Now I think the Committee have as much information as they can have upon this subject. With regard to the malt tax, they pay so as to enable us to find out the consumption approximately, which they told us was 40,000 centners a year. We were anxious to ascertain as far as might be something tolerably accurate and precise about the quantity of hops that were consumed in Bavaria, and I thought it was better to endeavour to do so by means of the malt duty. It seems that one scheffel of malt contains six bushels, and an eimer contains 14 gallons. Now, if upon the average of first and second quality of beer, 4 lbs. of hops are used to a scheffel of malt, and produce 7¼ eimers of beer, or about 100 gallons, and if the malt tax of five florins the scheffel amounts to 5,000,000 florins, the quantity of malt used would be 1,000,000 scheffels, and the quantity of hops used would be 40,000 centners.

7250. Mr. *Bass.*] Do not they profess to grow more than 45,000 centners in Bavaria?—I have heard nothing from anybody professing to grow less than 120,000 cwts.; but they grow 167,000 cwts. according to the best information that I have been able to collect. The way in which I collected it was this; we took various opinions, and have taken the average of those opinions.

S. L. Lucas, Esq.

30 July 1857.

7257. Sir *Edward Dering.*] In fact you adopted the same principle upon which you have acted throughout?—Yes.

7258. Although there may be some discrepancies in the various statements, have you any doubt that what you have stated to the Committee is a fair result of your investigation?—I have no doubt of it whatever; I think it is evident that the variations in the cost of production in Bavaria, are not equal to the variations in the cost of production in the various districts in England. I think if the hop land in Farnham sometimes lets for 25 *l.* an acre, and the low hop land in the Weald of Kent and Sussex sometimes lets for 10 *s.* an acre, we shall not find in Bavaria any discrepancy equal to that. In fact they do not show much discrepancy.

7259. Mr. *Knight.*] What was the lowest price you have heard given before the Committee for the cost of production in England?—I think it was 19 *l.*

7260. Do you remember the cost of production before picking, that was given as to the hop lands at Farnham?—It was I think nearly 55 *l.* That would show that the discrepancies in Bavaria are not so great in point of fact as they are in England. I have made out the cost of production in cwts. English of hops in Spalt city to be 4 *l.* 16 *s.*, and I make it 1 *l.* 10 *s.* in Holetau.

7261. Is not the Spalt city analogous in some measure to Farnham?—Precisely so.

7262. I believe we have had evidence that in Farnham hop land lets for 25 *l.* an acre, and that the expenses before picking are 54 *l.* 7 *s.*?—Precisely; it is analogous.

7263. Mr. *W. Martin.*] You have said that in one district the people seem to be afraid to grow too many hops?—Yes, that was the Hersbruck district.

7264. Was that their feeling in Holetau?—No.

7265. Mr. *Brand.*] Are the hops grown in the Holetau district of good quality?—I believe them to be so; but Mr. Parkes, who is a hop factor, went with me, and he will give the Committee precise information upon that subject.

7266. Should you say that they are equally good with the hops grown in the Hersbruck district?—They are equally good with our best East Kent, and exceed in value the Hersbruck hops.

7267. Will you tell me what is the distance from Holetau to Hersbruck?—It takes 12 hours to go from Nuremberg to Holetau by carriage. If you want to go, you go by the Ratisbon road, and you turn off upon that road.

7268. What would be the cost of the carriage of a hundredweight of hops from Holetau to Hersbruck?—We did not ascertain that. The hops would not go to Hersbruck; they would go to Donawörth, upon the Danube. They would go by water to Donawörth, and then they would go on by rail. We have put the cost of transit from the place of production to Nuremberg, per centner, at 1 florin 12 kreutzers, that is exactly 2 *s.*; but supposing, from Holetau, it costs 4 *s.*, that only increases the cost price in England by 2 *s.*; instead of costing 1 *l.* 4 *s.* 7 *d.*, the carriage would cost 1 *l.* 6 *s.* 7 *d.* I do not admit that is the case, but I am sure it would not exceed that.

7269. Does not it appear, by the evidence which you have given to this Committee, that the cost of cultivating hops in the Hersbruck district is double the cost of cultivating in the Holetau district?—It is 1 *l.* 10 *s.* in Holetau, and 2 *l.* 0 *s.* 8 *d.* in the Hersbruck district; in Hersbruck city it may be double.

7270. Can you say how it is that there is a cheap cultivation in the Holetau district; does not it supersede the cultivation in the other districts?—I can only explain it in this kind of way, that there has been a considerable increase in production no doubt in Bavaria. All the districts seem to have increased more or less, as far as we can arrive at it. But if they can produce 55,000 cwts. in the part where 20 years ago they only produced 5,000, it would seem that the production has increased very much more in proportion there than elsewhere. I should think that one might very fairly say that now, for example, in the parish of Wateringbury, it costs a vast sum per acre to cultivate hops, and no doubt there are other soils in various parts of England which would grow hops; but in some places they are accustomed to grow them; it is the custom of the country; therefore they go on growing them, and no doubt they get a great profit upon them.

7271. Mr. *Bass.*] From the result of your inquiry in these foreign countries, do you apprehend that there will be great danger to the permanent interest of the

the hop-growers in this country, if they had free trade in hops?—I think it is not to be concealed that if there was perfect free trade in hops, the Bavarian hops must inevitably supplant our best hops, and the effect of that would be to force our hops down in price to the level of the second quality of foreign hops, and if that did not pay, to force them out of cultivation. The Wealds of Kent and Sussex must inevitably go out of cultivation in the case of free trade.

7272. Considering the prices which they pay at Spalt, which is the most favoured district of Bavaria; should you apprehend competition from that quarter to be very injurious?—I think if you could get Spalt hops into this country at 6 *l.* a cwt., the quantity of English hops grown would be considerably lessened. But I do not think they come here; I think that the Spalt hops are a sort of hop that have a great reputation abroad; they are bought abroad, and I doubt very much whether any Spalt hops come here; if there are any, there is no quantity.

7273. May we conclude there is no fear of a competition with Spalt, which grows the best hops in Bavaria?—I said if they were brought here, they would compete with ours, and I said that, practically speaking, I did not believe they were brought; I did not say that I should not fear them, but that they were not brought.

7274. It appears hops cost 1 *l.* 10 *s.* at Holetau, and they cost 4 *l.* 16 *s.* in Spalt, and the cost of carriage between the two places is only two or three shillings; how can such a state of things exist?—For the same reason that they do not cease to grow hops in Wateringbury at great cost, because they can grow them in the Weald of Kent, North Kent, and some other parts of Kent, at a less cost.

7275. Do these hops bear the same relation to one another in quality as the hops at Holetau and Spalt?—I think precisely the same relation.

7276. Did not you tell us that the Holetau hops were good?—Yes.

7277. Would you make the same relative comparison between the Weald of Kent and Wateringbury as between the two districts of which you have spoken?—With regard to the quality of hops it is necessary for me to be cautious; as an owner of hop land, of course I must have considerable knowledge upon the subject, but I have not an accurate knowledge about the quality of hops.

7278. Mr. *Knight.*] A former witness, who is a Bavarian hop merchant, and who has an oast-house of his own in Bavaria, tells us this: "There is a favoured district called Spalt, but I have seen much better hops grown out of Spalt than ever were grown in it; I think there is a prejudice in favour of Spalt hops and of hops in the neighbourhood, but I could find hops grown away from that district which are far superior to any grown in Spalt;" does that accord with your views upon the subject?—A man in Spalt said to me, "We get better prices, but there are a good many hops in the Spalt district equally good with ours." But I will come back to the question, which seems to me to be of great importance, Why do they grow hops at all in Hersbruck if they can grow them so much cheaper and equally good, or rather better in Holetau? Now, I have looked at it in this way: there are a great number of people accustomed to grow hops in Hersbruck, and it has become one of the principal districts for hop-growing; I am speaking of Hersbruck city now, not of the Hersbruck district. The population have great quantities of buildings, and various other things adapted for the cultivation of hops; they get a good profit, and they are satisfied with it; but I do not think that the increase of production in the Hersbruck districts has been at all equivalent to the increase in Holetau; I believe the Holetau hop planters are increasing their plantations, and that they are likely still to do so if the market is not limited; I believe in the course of years they will cut the Hersbruck out of the country, but I do not think that will be so if the market in foreign countries goes on increasing; the Holetau hops and the Hersbruck hops will both continue to be grown.

7279. Will you inform the Committee how it happens that in the district of Holetau they are able to produce hops at 1 *l.* 10 *s.*, while in Hersbruck they cost 4 *l.* 16 *s.*?—That is very evident, because the cost of production is less; the other question is more difficult to answer, particularly for a man going into the country for a short time; I had been there before, and I had made inquiry, of course, upon the subject, but it is not an easy question for any man to answer. I refer to the question, Why do they grow hops in one place at a greater cost, when they can grow them at another place at less cost? The

S. L. Lucas, Esq.

30 July 1857.

plantations have increased only a little in Hersbruck, but enormously in Holetau.

7280. Mr. *W. Martin.*] Does not it appear that the fact of the cultivation spreading in Holetau, and not in Hersbruck, proves that the cost of production is less in Holetau than in Hersbruck, and the profit in Holetau is greater than in Hersbruck, and affords a greater inducement to produce hops?—Yes.

7281. Mr *Bass.*] Did I rightly understand you to say that the cultivation of hops was increasing in Hersbruck, though not so fast as in Holetau?—It is increasing all over Bavaria; I should consider that in the town of Hersbruck almost all the land is in hops, and that therefore it can increase but very little; whereas in Holetau they have 600 square miles fitted to grow hops, and they can grow if it pays them.

7282. Sir *Edward Dering.*] Have not they increased from 5,000 to 55,000 in 20 years?—Yes.

7283. Is it not from that district that you apprehend that most of the hops will come which will interfere with you?—Yes; and from the Spalt country.

7284. According to your calculation, do not you find that they can be grown in Holetau to almost an indefinite extent over those 600 square miles at a profit, and laid down in the bonded warehouse in London at 2 *l.* 16 *s.* per cwt.?—That is allowing no grower's profit; it is allowing the merchant's profit, but no grower's profit, so that I have put on 1 *l.* a cwt., which is a good grower's profit.

7285. Do you suppose, including the merchant's profit and the profit of the grower, that hops might be produced equal to the best East Kent for 3 *l.* 16 *s.* 7 *d.*?—Yes; and that even might be reduced if they put up proper kilns in Holetau, and did all the packing and drying there.

7286. Does not that calculation give 1 *l.* per cwt. as the grower's profit?—The cost of production is 1 *l.* 10 *s.* the freight, and those expenses 1 *l.* 6 *s.* 7 *d.*, including the merchant's profit; if you allow 1 *l.* a cwt. for profit, that will make 3 *l.* 16 *s.* 7 *d.*

7287. Mr. *Bass.*] The clear result of free trade in your mind is a diminution of the cultivation of hops in this country by the competition of such people as the Holetau growers?—It seems to me to be quite clear that if they can send hops as good as our best hops now, allowing 1 *l.* a cwt. profit to the grower at 6 *l.* a cwt., that you will buy those in preference to our hops, which upon the average will have cost more.

7288. And that will drive your hops out of cultivation?—I do not say that; it may drive my hops into the second place, that is now occupied by the Weald of Kent and Sussex, but it is clear that a large extent of cultivation must be displaced; whether it is to fall upon my district, or upon the low-priced district, is a question I cannot answer.

7289. Will not that be caused by a reduction of the price?—Yes.

7290. Will not those who use hops get the advantage of that?—Of course; and the question seems to be this: Is the benefit to the country at large sufficiently great to warrant the Government in ruining a certain portion of its subjects?

7291. Mr. *Brand.*] Did I rightly understand you to say that the cost of production per acre in Holetau was 8 *l.* 1 *s.* 2 *d.*?—Yes.

7292. What is the cost of picking and other expenses per cwt.?—I gave you the cost of everything before picking of an English acre at 8 *l.* 1 *s.* 2 *d.*: then the cost for picking, and drying, and packing a centner, is seven florins; six florins is 10 *s.*, therefore that amounts to 11 *s.* 8 *d.* a centner. A centner is one-eighth larger than an English cwt., therefore it is something less than 10 *s.* per English cwt.

7293. *Chairman.*] Then is the cost of cultivation before picking 8 *l.* 1 *s.* 2 *d.* per acre, and the subsequent expense 10 *s.* per cwt.?—Yes.

7294. What is the average production?—Six centners; I believe that in Spalt city this year they will grow nearly eight cwt. an acre.

7295. Mr. *Bass.*] Did they grow a large crop last year?—No.

7296. *Chairman.*] Have you any further statements to make to the Committee with respect to Bavaria?—No.

7297. Has the production per acre been increasing or decreasing in Bavaria?—It is very clear that the increased production has been to a great extent occasioned by increase of the plantation. There is no doubt the plantation of hops has been steadily

steadily increasing for a number of years past, but whether the production per acre is now greater than it was, I am unable to tell. *S. L. Lucas, Esq.* 30 July 1857.

7298. Can you tell whether, with respect to the high-priced hop in the Spalt city district, the demand has induced people to farm more highly?—I asked these questions of those whom I met, "What do you call a good crop of hops?" and they said so much. "What do you call a bad crop of hops?" and they said so much. "What do you usually grow?" about so much. That is the way I arrived at the average.

7299. You did not make inquiry as to that point?—No; I did not ask whether the increased number of hundredweights was occasioned by increased plantation, or by increased production, but I am able to say that it must be occasioned by increased plantation to a considerable extent, because the plantation evidently has increased to a considerable extent. I saw a large number of young hops.

7300. Is not it the case that most of the land in Bavaria is in the hands of peasant proprietors?—I believe a considerable portion of it is.

7301. Were the growers whom you consulted peasant proprietors?—Some of them; but at the same time they can hardly be called peasants; they are more like our English yeomen, men of some considerable intelligence and education, and so on, and having comfortable houses.

7302. Do they employ hired labourers?—I should say they have both the one and the other; that they both employ hired labour and work themselves.

7303. Did you find, on inquiry as to the cost of production, that they had any difficulty in giving you the information that you required?—I found that in some of the districts they answered my questions with remarkable facility; and when they were at a loss, they would go to their desk, and bring out their books; they would look at them, and give me the positive cost. They seemed generally to keep accounts, and whenever they were at a loss, if we were in the house, the man used to go to his account-book, and find it out.

7304. Do not those peasant proprietors cultivate the land by the labour of their own family?—I rather think they did.

7305. Did they take an estimate of the value of their own labour in the calculations which they gave to you?—They took an estimated value of their own labour. They said it would take so many days' cultivation, and reckoned how much that ought to cost.

7306. When you told the Committee that the production of hops might be doubled, did you mean to say that you were informed that there was still an equal amount of hop land that might be brought into cultivation of as good quality as that which is already under cultivation?—I think that there is no question that there is a quantity of land fitted for that sort of cultivation, and there must be a great deal more that is not under cultivation than is under cultivation. There is land evidently fitted for the cultivation, with hops in patches upon it, looking uncommonly well, and there is no reason why that land should not be under hop cultivation, and it seemed to me that if it paid them to go on, they would; and there is no doubt that if the English market were open, there would be a considerable stimulus, and the increase would be greater.

7307. Is there any field for an increase in the production of the highest Bavarian hops?—I believe that in the Spalt country the production might be increased very much, and that a great portion of the Spalt country is able to produce hops as good as the Spalt city, and that the Holetau hops are, as I have endeavoured to explain, of an exceedingly good quality, and to be cultivated at a moderate cost.

7308. Mr. *W. Martin.*] Do you think that there is a good supply of labour?—I do not think there would be any difficulty in finding labour, for in the Spalt city they find workpeople very readily; they come out of the palatinate. I have no doubt if they wanted labour, they would get it.

7309. Mr. *Bass.*] Would not that involve an extra cost?—I do not know that.

7310. Sir *Edward Dering.*] You said that the cost of a labourer was 6*d.* a day?—It varies. In the country districts it is from 24 to 26 kruetzers; in the town district it is more.

7311. *Chairman.*] Can you give any estimate of the number of hop-growers?—No.

7312. The land being in the hands of small proprietors, they must be very numerous?

S. L. Lucas, Esq.

30 July 1857.

numerous?—They must be numerous; but I think the smallness of the holdings has been much exaggerated. I met with several men possessing considerable pieces of land.

7313. Mr. *Brand.*] Did you ever see a plantation amounting to 10 acres?—I saw a hop plantation in one district in Spalt, not all belonging to one man, but all in one lump, amounting to 300 or 400 acres, and I think I saw a plantation of six morgens belonging to one grower; I will not be certain. That is the largest I know of my own knowledge; but I did not particularly inquire into it.

7314. *Chairman.*] How many acres are there under hop cultivation in Bavaria?—I think about 26,500; but there are great differences of opinion about that. I received various estimates, and I took a sort of average of the estimates.

7315. May the Committee infer that there are 6,000 or 7,000 persons employed upon hop cultivation in Bavaria?—I have not the least notion.

7316. Did not you say that in your opinion there are a great number of hop-growers?—I have no doubt that there are a great number of hop-growers, but what number there are I have no idea.

7317. Did I rightly understand you to say, that if the demand for hops increased, the prices would be reduced?—No; I think, on the contrary, they certainly would not be reduced; I should think that the prices would perhaps not increase very much. If I gave any evidence of that sort, it applied to English hops; the prices in this country would decrease.

7318. Mr. *Knight.*] If there were a steady market for a large quantity, do you think that hops could be supplied to the market lower than they have hitherto been upon an average of years?—I think with regard to the average of the hops in Bavaria, there is no question that they could be supplied at a lower price than they have hitherto.

7319. Do you think that the production of hops in Bavaria might be much increased without any increase in the cost of production?—I believe that it might be doubled without any increase in the cost.

7320. *Chairman.*] Do you think that the creation of a demand of this kind would have that effect?—I think it would have a great effect, for of course the force of competition would make the farmer sell his hops at a lower profit; I consider that they have been making too much lately; I do not think it would reduce the price, but it would have the effect of preventing it from rising; if they were to have a great demand, and if the prices had been what they ought to be, that great demand would have the effect of increasing the price; but I do not think that that would be the effect in this case, because I believe that the farmers in most of the districts of Bavaria have got more than they ought to have got upon the average of years.

7321. If the properties are small, and the cultivators numerous, how do you account for the fact that they have been able to go on at such an inordinate price?—I think that when you find a man admitting that upon the average of years he has made 17 florins per centner, that is very nearly 1 *l.* 12 *s.* per cwt., and that upon the average of 30 years he has made considerably more than the English grower makes, you may call it an inordinate profit.

7322. Is it more than the Bavarian farmer makes in other things?—I do not know. I am inclined to think that the Bavarian hop farmers have been driving an uncommonly flourishing trade, and that the effect of opening the market will be to increase the competition, and to cause things to find their level, and that they will sell after a certain time at the price at which it pays them to sell.

7323. Do you think that if the demand for Bavarian hops increased, there would be an increased competition, and therefore a reduction of profits?—I do not believe that if the trade with this country goes on even without free trade, the average price per cwt. in Bavaria will continue to be what it has been hitherto.

7324. Do you think that the effect of an increased demand will be a reduction of price?—I think it will tend to increase the plantation. They have a limited consumpton in Bavaria; they only consume 40,000 cwts., or thereabouts, and they are in the habit of growing more than 80,000 cwts., which they always export; and I am inclined to think that if the plantation goes on increasing, and the trade continues to open, their profits will be lessened. I do not mean to say that the grower always gets the profit; perhaps the Bavarian merchant gets it.

7325. Sir

7325. Sir *Edward Dering.*] The profits will be less, and the prices will remain about the same?—Yes, that is my notion. I do not know that they will remain about the same; they might even be lowered a little.

7326. Mr *Bass.*] Must not the prices be lower if you reduce the profit?—I think so; I am inclined to think that they got too much profit.

7327. Mr. *W. Martin.*] Have you any idea how many acres a man has for himself and his family?—There are a great many little houses by the side of the road, and if you talk to the man, you would find he had 40 acres of land. I have often found them having 40 or 50 acres of land.

7328. *Chairman.*] If there is so great an amount of land that might be cultivated with hops, and hop-growing is so profitable a business, how do you account for it that competition has not long ago reduced the prices?—I think the plantations have been gradually increasing for a long time.

7329. Have profits been reduced?—I do not know.

7330. Mr. *Knight.*] Is it not the fact that at present hops are only produced in this country in consequence of very high prices taking place?—I think it would be better for me not to give evidence about that, for I do not understand it.

7331. Mr. *Brand.*] You spoke of the cost of transit as amounting to 1 *l.* 4 *s.* 7 *d.*?—That includes the expenses of every sort and kind from the time of the merchant buying the hops to the time he sells them here.

7332. Does that include the expense of re-drying?—It includes the expense of re-drying and re-packing.

7333. *Chairman.*] What information have you to give to the Committee with respect to Belgium?—With respect to Belgium, I think it is right to tell the Committee that we endeavoured to get through as much as we could in our short time, for we had, comparatively speaking, a little time; and therefore the information is not from so many people as it was in Bavaria. At the same time, I was in Belgium in 1852 and 1853 for very nearly a year, and therefore I had some considerable acquaintance with it beforehand. I will give you the cost of production first in Alost and Poperinghe.

7334. Where is Poperinghe?—It is close to a station upon the Calais and Paris Railway, called Harsbrook Station; it is close to the French frontier. The cost of an English acre before picking is 11 *l.*, and the total cost of production per hundredweight, including all expenses up to the time of sale, is 1 *l.* 12 *s.* 8 *d.*

7335. Will you hand that statement in?—

[*The same was handed in, and read, as follows:*]

ALOST, BELGIUM, near the Town.

	Fr.	*c.*
Rent of hop land per hectare	150	–
There are 3,000 poles to the hectare, costing 30 centimes each on the average; total cost, 900 *fr.*; interest on	45	–
Cost of replacing one-eighth each year	112	50
Manure per hectare	225	–
No tithes or taxes.		
Labour before picking per hectare	150	–
Cost of raising plantation, 100 *fr.*; but this cost is usually paid by the first year's produce of the ground; say however	5	–
Cost of an hectare of hops before picking *Fr.*	687	50
Picking, drying, and packing 100 kilogrammes, 22 *fr.* 45 *c.*, average production, 1,250 kilogrammes per hectare	280	62
Total Cost on a hectare of hops *Fr.*	968	12
Cost per 50 kilogrammes *Fr.*	38	72

Cost per English acre before picking, an hectare being about 2 ½ English, 275 *fr.*, or 11 *l.*

Cost of the production of 50 kilogrammes of hops, including all expenses up to the time of sale, 38 *fr.* 72 *c.*, or per cwt. English, 1 *l.* 12 *s.* 8 *d.*

This calculation refers to a part near the town of Alost; they seem to get another crop besides hops; they get tobacco, and they get other things. They would

S.L Lucas, Esq.

30 July 1857.

would not say that it cost them anything to raise the plantation; they said they were paid by it. It should be noticed that a hectare is about 2 ½ English acres. Then I have a return as to Alost country, which is further from the town.

7336. Mr. *Brand.*] How many cwts. per acre do you allow?—In Alost town 1,250 kilogrammes; the kilogramme is 2 lbs. 2 oz.; it is something over a ton per hectare, and something above 9 cwt. per acre in the Alost country. The cost of an English acre before picking is 10 *l.* 10 *s.* 6 *d.*, and the total cost of the production of a hundredweight of hops, including all the expense up to the time of sale, is 1 *l.* 8 *s.* 2 *d.*

7336.* Will you hand that in?—

[*The same was handed in, and is as follows:*]

ALOST COUNTRY.

	Fr.	*c.*
Rent of hop land per hectare	150	–
3,250 poles to the hectare, costing 35 *fr.* per 100; interest on 1,137 *fr.* 50 *c.*	56	87
Cost of replacing, one tenth each year	113	75
Manure	175	–
Labour before picking	156	–
Cost of raising plantation 1 *d.* to about 100 *fr.*, considered to be covered by the production; say however as interest	5	
Cost of an hectare before picking – – – *Fr.*	656	62
Cost of picking, drying, and packing 100 kilogrammes, 12 *fr.*, or per hectare	144	–
TOTAL Cost per hectare – – – *Fr.*	800	62
Cost per 50 kilogrammes – – – *Fr.*	33	36

Cost per English acre before picking, an hectare being 2 ½ English acres, 262 *fr.* 64 *c.*, or 10 *l.* 10 *s.* 6 *d.*

Cost of the production of 50 kilogrammes of hops, including all expenses up to the time of sale, 33 *fr.* 36 *c.*, or per hundredweight English, 1 *l.* 8 *s.* 2 *d.*

7337. What is the cost at Poperinghe?—At Poperinghe, the cost per English acre, before picking, is 24 *l.* 8 *s.*; and the total cost of the production of a hundredweight of English hops, including all expenses up to the time of sale, is 2 *l.* 9 *s.*

[*The same was handed in, and read, as follows:*]

POPERINGHE, near the Town.

	Fr.	*c.*
Rent of hop land per hectare	175	–
3,000 poles to the hectare, at 50 centimes each, 1,500 *fr.*; interest on	75	–
Replacing one-sixth each year	250	–
Manure per hectare	250	–
No tithe or taxes.		
Labour before picking	775	–
Cost of plantation is supposed to be covered by the produce of the ground during the first year.		
Cost of an hectare of hops before picking – – *Fr.*	1,525	–
Cost of picking, drying, and packing 100 kilogrammes, 15 *fr.* or per hectare	225	–
TOTAL Cost of a hectare – – – *Fr.*	1,750	–
Cost per 50 kilos. – – – – – – *Fr.*	58	33

Cost per English acre before picking, an hectare being 2 ½ English acres, 610 *fr.*, or 24 *l.* 8 *s.*

Cost of the production of 50 kilogrammes of hops, including all expenses, 58 *fr.* 33 *c.*, or per cwt. English, 2 *l.* 9 *s.*

7338. What

7338. What is the next statement that you have to put in?—In the country districts about Poperinghe the cost per English acre before picking is 18 *l.*, and the cost of the production of a hundredweight of hops English is 1 *l.* 16 *s.*

7339. Will you hand it in?—

[*The same was handed in, and is as follows:*]

Poperinghe Country Districts.

			Fr.	c.
Rent of an hectare of hop land			116	67
3,000 poles to the hectare, at 50 *c.* each, 1,500 *fr.*; interest on			75	–
Replacing one-sixth each year			250	–
Manure per hectare			166	66
Labour before picking			516	66
		Fr.	1,124	99
Cost of picking, drying, and packing 100 kilos., 10 *fr.*, or per hectare			150	–
Total Cost of an hectare		*Fr.*	1,274	99
Cost per 50 kilos.		*Fr.*	42	50

Cost per English acre before picking, an hectare being 2 ½ English acres, 450 *fr.*, or 18 *l.*

Cost of the production of 50 kilos. of hops, including all expenses, 42 *fr.* 50 *c.*, or per hundredweight English, 1 *l.* 16 *s.*

7340. What is the next statement that you have to put in?—The expenses upon an English hundredweight of hops from the time of sale to the merchant to its delivery into a bonded warehouse in London, is about 10 *s.* This applies to the Alost district.

7341. Will you hand it in?—

[*The same was handed in, and read, as follows:*]

Expenses upon a Hundredweight of English Hops from the time of Sale to the Merchant to its Delivery into a Bonded Warehouse in London.

This applies to the Alost District.

		Fr.	c.
Cost of cloth fit for packing for export, per 50 kilos.		1	33
Pressing and packing, per 50 kilos.		2	11
Water carriage to Antwerp, 50 kilos.		–	50
Expenses at Antwerp and freight to London, per 50 kilos.		1	50
Expenses there		1	11
	Fr.	6	33
Belgian merchant's profit, say per 50 kilos.		5	11
Total cost per 50 kilogrammes	*Fr.*	11	33

or per hundredweight English, say 9 *s.* 1 *d.*

7342. Does that include drying?—Yes, it includes the drying. If the Belgium merchant dries them, as he does sometimes, it is merely to sulphur them; the drying is performed by the farmer; they use some kind of chemical process; some people say it is ether, which makes the hops swell; and therefore that being a traffic that one has no right to consider, I have not taken anything for that. Indeed I suppose the merchant would not have told us what it cost. They profess to take the hops out of the grower's hands, and rip up the hops, and pack them up merely for the English market.

7343. Are

S. L. Lucas, Esq.

30 July 1857.

7343. Are not Poperinghe hops only sun dried?—No; they are all dried by kilns.

7344. Are the hops generally dried by the grower, or by the merchant?—I believe they are principally dried by the grower.

7345. Have the growers oast houses?—The growers have oast houses.

7346. Have they their own oast houses?—Yes.

7347. Are you speaking of Alost?—I am speaking of Alost and Poperinghe.

7348. Are the proprietors mostly small proprietors?—I believe they are.

7349 Is there not often one oast house for several proprietors?—I do not know that; we had no very great time to give to Belgium, but we drove about the country; we had one of the oasts shown to us, and we asked the owner how much does it cost, and so forth. Those were the sort of questions we we put.

7350. What districts did you visit?—The country round Alost and the country round Poperinghe.

7351. In both those places you found oast houses?—I do say that every peasant had an oast house, but there were oast houses about the country in the hands of the peasants.

7352. Are the hops kiln-dried in the country before they come to the hands of the merchant?—Yes.

7353. Mr. *Bass.*] Do you know the wages of labour at Poperinghe?—It is about 1 franc 50 cents for a man, and 1 franc for a woman. Of course we put down what some of the people told us, that they paid as we did in Bavaria, and I have those memorandums with me; I will send the statement of Herbert Cantorre, who lived near Alost, close to the town. There are about 3,000 poles to the metaire, which cost from 10 to 50 centimes each pole, and lasts seven or eight years. Constant labour of one man is required for each hectare for three months in the year, at 1 franc 50 centimes the day, without food; and there is additional labour 30 francs the hectare. Average production is 1,250 kilogrammes the hectare; the cost of picking 15 francs the 100 kilogrammes, and the cost of drying 5 francs the 100 kilogrammes. They are dried with coke. The cost of cloth for packing is 2 francs 40 centimes the 100 kilogrammes; manure 225 francs the hectare per year. Land is let at about 150 francs the hectare per year, and sells at about 6,000 francs the hectare.

7354. Does the rent include the use of the poles?—No; the rent of the land is 150 francs the hectare.

7355. In what district is that?—Near the town at Alost. My informant calculated the entire average expense of a hectare of hop land producing an average crop, including all expenses to the time of the sale to the merchant upon the spot, at 800 francs. "In some of the best ground the production of each plant is two kilogrammes. The poles are about 25 feet high; they are brought by the canals from the forests, and sold by public auction. It costs about 100 francs to plant a hectare of hops, but this cost is generally repaid by the first year's produce of the ground. The plantation lasts about 15 years. Kilns cost about 150 francs each to build;" they are very badly constructed (that is a memorandum of my own). "The plants are six feet square apart. Picking begins upon the 10th of September. If the prices were good the plantation could be doubled. Hops pay well at 40 fr. the 50 kilogrammes" (50 kilogrammes is 106 lbs.) "For 50 francs the 50 kilogrammes he would contract to sell his crops for the next 10 years to come, and 'would get an enormous profit'" (that is, 2*l.*, and a little under, per hundredweight.) We said to him, "What pays you well?" he said, "I get a good profit at 40 francs." Then I said to him, "Supposing I would buy your hops for 10 years, what would you take for them?" And he said, "I should want to have 50 francs, because I might get a bad year." I said, "You would make a good thing of it;" then he said "*Oui Monsieur, je tirerais un benefice enorme.*" He seemed to be of opinion that 50 francs was more than he ought to get, if he was going to sell them upon the average of years. "Kilns are improving in this country, and an improved one costs 1,000 francs to build." We went to one there which was upon a wretched principle.

7356. Was this also near Alost?—This was near Alost.

7357. Mr. *Knight.*] Did that belong to the grower, or to a merchant?—To the grower.

7358. *Chairman.*]

7358. *Chairman.*] Did you visit any districts besides Alost and Poperinghe?—No.

7359. Sir *Edward Dering.*] Are not those the two principal hop-growing districts of Belgium?—Those are the two principal districts.

7360. Can you give us the number of acres in the Alost district under hop cultivation?—I can give you what they consider to be about the number of kilogrammes produced, and you might deduce it from that. There was a hop merchant at a little village near Alost, who told us the cost of the cloth (we had not at all asked him the cost), for a bale of 150 kilogrammes, for export, is four francs, pressing and packing two francs per 50 kilogrammes. He professed not to do anything to his hops; but there was a farmer who went with us to show us, who told us differently. We wanted to see a sample of hops. He said, "This man has some;" and we went to see them. When we got into the storehouse up stairs we looked at the hops, and presently the farmer began to tell me something, and I saw the merchant give him a kick; and when he got down stairs I asked him what he got the kick for, and he said that the merchant, instead of pressing and packing them, puts them upon the kiln, and sulphurs them. That is all very well; but besides that they are supposed to use, and they do in point of fact use, some substance or another which this man believes to be ether, which swells the hops up and makes them sticky.

7361. *Chairman.*] When you told us that the cost of production per hundredweight was 1*l.* 8*s.* 2*d.* in the Alost country, are there the subsequent expenses of picking and packing and pressing?—The cost of the hops to produce is 1*l.* 8*s.* 2*d.* The cost, including the merchant's profit, but not the grower's profit, is less than 10*s.* to get them to England.

7362. Does the 1*l.* 8*s.* 2*d.* include the expense of drying?—It includes every possible expense. Then we met with a very intelligent man, who was an echeven or sheriff, and also a hop planter, near Alost, living some five or six miles out of Alost, and he said that the land was ordinarily worth about 3,000 francs the hectare; but that sometimes for accommodation land they pay 10,000 francs; but I do not think that that is important. He said, "The usual rent of the land is 150 francs the hectare. There are 3,000 to 3,500 poles upon a hectare; they cost 35 francs per 100, and last 10 years. Hops last 15 years in plant. The entire expense of cultivating a hectare of hop land (not including the cost of the manure or rent) to produce 500 kilogrammes the hectare, is 300 francs the year; 12 centimes per kilogramme is the proportion of this sum paid for picking, drying, and packing; manure costs 175 francs the hectare per year. Some years the produce amounts to as much as 2,000 kilogrammes the hectare. By far the greater portion of the hops in Belgium are grown at some distance from towns at the cost above given. He believes the production of Belgium to be about 5,000,000 kilogrammes. He considers Alost and Poperinghe hops to be about equal in value. He grows four or five different kinds of hops, and finds the small round hops grow equally well with the large. He finds quantity, however, pay better than quality; he has some English sets which grow well. The plantation has increased one-third in those districts since 1852, and is extending to new districts; 70 francs per 50 kilogrammes may be taken as an average price for 10 years, 1854 excepted. There is a tax of 1 franc 50 centimes upon a hectolitre of beer. He said that in 1854 hops which had been already brewed, were redried in Belgium" (he meant German hops) "and mixed with unbrewed hops, and sold as hops of 1852 and 1853. Some of the Belgian hop merchants" (or fabricants, as he called them) "are said to have made as much as 100,000 francs that year by this traffic. He believed the fraud was shared by some Englishman. He considered it highly imprudent for any foreigner to buy Belgian hops which have not the authorized mark of the district in which they grow stamped on the package, and also the certificate which is written at the time and given with them." Then we went to a hop merchant at Alost, a M. Jelie, who I believe is a very respectable man, and he said, "Some time ago it was determined to give prizes to encourage the peasants to cultivate their hop grounds in the best manner. A commission was appointed, which made statistical inquiries, and found that, upon the average, 50 kilogrammes (one cwt. English) of hops cost the grower 31 francs (1*l.* 6*s.* 2*d.*) to produce." There was a species of agricultural society about there, and they were desirous of giving premiums to encourage the best growth

S. L. Lucas, Esq.

30 July 1857.

of hops, just as we do in England. And that commission appointed by this agricultural society inquired into the cost of production in all the districts round about Alost, and were satisfied that they cost the grower 31 francs the 50 kilogrammes to produce hops.

7363. Mr. *Knight.*] What price is that per hundredweight English?—That would be per hundredweight English 1 *l.* 6 *s.* 2 *d.*

7364. Mr. *W. Martin*]. Did you see that report?—No, I did not, but a gentleman who was one of the commission told me so. Mr. Jelie, of Alost, told me what it contained.

7365. *Chairman.*] Does that expense include drying?—It included everything.

7366. Mr. *Bass.*] Was that grown upon land that cost 60 *s.* an acre?—I was not told that.

7367. Sir *Edward Dering.*] Did not the report of that commission corroborate within 2 *s.* an acre your own figures, your calculation being 1 *l.* 8 *s.* 2 *d.* and the report of the commission stating it at 1 *l.* 6 *s.* 2 *d.*?—Yes, this calculation which I have in my book was made before I heard a word of this commission. Then Mr. Jelie gave us the prices of Belgian hops from 1848 to 1856; they were taken upon the 31st of December, or thereabouts, in each year, and they are as follows:

	£.	s.	d.			£.	s.	d.	
1848 - -	1	3	–	per cwt. English.	1853 - -	3	8	–	per cwt. English.
1849 - -	3	2	–	„	1854 - -	13	10	–	„
1850 - -	1	4	–	„	1855 - -	1	19	9	„
1851 - -	5	17	–	„	1856 - -	1	18	–	„
1852 - -	1	18	–	„					

7368. Mr. *Brand.*] What is the average of those years?—£. 3. 17*s.*; he said also plantations might be largely increased *enormément*, *doublé*—that was his expression—and that there was plenty of capital to be had in the country to build any oast houses that might be wanted. I asked him, "Supposing it were desirable to build English oast houses (supposing you were quite certain that English oast houses were upon a better principle, and that it would save you a great deal of money to dry your hops upon the English principle), is there money enough in the country to build proper oast houses?" and he said, "Yes, there is plenty." Then as to Poperinghe town, I have the following memorandum: "There are 3,000 poles to the hectare, costing from 40 to 60 centimes each; they last six years; land is worth from 3,000 to 5,000 francs the hectare; the rent of land to let is 175 francs the hectare. The ordinary crop is about 1,500 kilogrammes the hectare. The entire expense of cultivating a hectare of hop ground producing the above crop is about 1,200 francs for labour of all kinds, and about 250 francs for manure. The cost of picking, drying, and packing" (which are included in the above estimate) "is about 10 francs 15 centimes the kilogramme. At a distance from towns the costs of every kind are less by one-third, or perhaps even by half. Most of the hops are grown at a distance from the towns, say four-fifths of the plantation. For entry into France there is a duty of 22 francs the 50 kilogrammes." It appears that they sometimes send their hops from there into France. "The system of marking is considered valuable. The Popernighe hops are considered superior in strength and flavour to the Alost hops, and are now selling at about five francs the 50 kilogrammes more than the Alost hops." We got that out of the price-current in the newspapers. "They are nearly all white bine hops here, and when any one plants red bine hops the neighbours frequently cut them up to prevent their being introduced into the district. There is plenty of land in this district fit for planting with hops. Some growers have five hectares of hops, but the ordinary number if from one to two hectares." I should also wish to state to the Committee that that seems to me to give some idea as to the prices that hops seem to bear in proportion to the cost of production.

7369. Mr. *Bass.*] Are they making extravagant profits in Belgium?—For some reason or other the cost of production in Belgium and the average prices do not at all correspond, and either the merchant or the grower must be getting more than he ought.

7370. Mr. *Knight.*] Are not they, in every district that you went into, increasing their plantations?—Yes.

7371. Is not that on account of the increased demand for hops in Europe, and the exorbitant prices they are getting?—Yes; especially the great demand for hops in England in 1854 must have had a great influence upon all foreign hop-growers; they expect that they are likely to get such another year.

7372. Mr. *Bass.*] Do you think that an average price of 3 *l.* 17 *s.* would make an exorbitant profit to the grower?—We arrive at that in this way: it seems to be the general opinion of everybody that the Alost district produces about six-tenths of all the Belgian hops, and the country districts are four-fifths more in extent than the town district, and the cost of production is very small in these districts; in Alost country it is 1 *l.* 8 *s.* 2 *d.* (call it 1 *l.* 10 *s.*), and therefore you may say that six-tenths of the Belgian hops are produced at something between 1 *l.* 8 *s.* and 1 *l.* 12 *s.* (call it 1 *l.* 10 *s.*), and sold, I suppose, at the prices mentioned; but we had positive evidence that they cultivated them even in the town district at 40 francs per 50 kilogrammes, that is one-eighth less than an English hundredweight, and that pays them very well.

7373. One hundred and seventy-five francs per hectare is 50 *s.* per acre?—Yes.

7374. Is not that more than the average rent of land in the Weald of Kent?—Yes, I suppose it is.

7375. Is not it double the rent that is paid in the Weald of Kent?—If the rent in the Weald of Kent was supposed to range from about 1 *l.* to 25 *s.* it would be so.

7376. Does not it appear to you to be a remarkable circumstance that, notwithstanding some diminished cost in labour, they should be able to get as good a profit, on an average of 10 years, as 3 *l.* 13 *s.*, paying more than double the rent which the Weald of Kent growers pay, while the Weald of Kent growers complain that they are being ruined by much higher prices?—I mean to say, that I believe that the highest cost of cultivation in Belgium, in producing hops, is 2 *l.* 9 *s.* the English hundredweight. Then the whole Poperinghe district produces three-tenths of the Belgium crop, and one-fifth of that three-tenths only is produced at a cost of 2 *l.* 9 *s.*, and the other four-fifths are produced at 1 *l.* 16 *s.* That is the Belgium calculation; but we made it 1 *l.* 8 *s.* 2 *d.* for the Alos country, and 1 *l.* 12 *s.* 8 *d.* for the land near the town; and it shows that we must have arrived at something like a correct statement when I state that it nearly agrees with the other.

7377. Can you give us any information how it happens that the Belgians, who pay double the rent which the grower of the Weald of Kent pays, can produce hops at 1 *l.* 8 *s.*, while the Weald of Kent man complains that he is ruined at something over 5 *l.*?—I conclude it is from the difference in the expense of cultivation. I can only say, that I have taken the utmost pains to ascertain this, and it seem that my statement tallies very much with the Belgian's own opinion, and therefore I believe that they can be grown for what I have stated. If the Weald of Kent people tell us that they pay so much we must believe them. I have no doubt that they make a loss, if they say so, but I am unable to judge that, and every man knows best what his own cost is. If a man says they cost him 25 *l.*, we must believe it. I cannot judge between the Weald of Kent man and the Belgian man.

7378. Mr. *W. Martin.*] There is no tithe and no poor-rate in Belgium?—There is no tithe, and no taxes of any sort, and no hop duty.

7379. Mr. *Beach.*] Is not the estimate which you gave half the lowest estimate given by the Weald of Kent growers?—Yes; that settles the question.

7380. *Chairman.*] If the cost of production is 11 *l.* an acre, and the production 8 cwt. per acre, would not that be 1 *l.* 7 *s.* 6 *d.* per cwt. for the cost of production, exclusive of the expenses of picking and drying?—Yes; it seems that before picking, the cost per hectare in Alost country is 10 *l.* 10 *s.* 6 *d.*, and in Alost near the town 11 *l.*

7381. Are those average prices the prices paid by the merchant to the grower, or by the brewer to the merchant?—I take it that they are the prices paid by the brewer to the merchant. I have no doubt about it.

7382. Where did you get them from?—We got them from Monsieur Jelie, a hop merchant.

S. L. Lucas, Esq.

30 July 1857.

7383. Did you ask the question of him?—I cannot say that I asked the question, but it seemed to be understood that it was so, because he got it from a book; I did not see the book, but it seemed to be a sort of book in which there were entries of sales to different people.

7384. Mr. *Brand.*] Is Monsieur Jelie a Belgian merchant?—He is a Belgian merchant.

7385. Is he a hop grower?—No, he is not.

7385*. Did you ascertain the cost of cultivation from him?—He did not give us any information as to the cost of cultivation, excepting that, being interested in the agricultural commission to which I have referred, he stated the facts arrived at by that commission. He did not give us the items of their calculation, but he said that the commission had decided that the cost of a crop of hops was 31 francs for 50 kilogrammes.

7386. Mr. *Bass.*] Taking 176 francs as the ordinary cost, and 144 as the cost of packing and fitting, does not that give 800 francs the hectare?—Yes.

7387. How much is that per English acre?—£. 12. 16.

7388. Will you state the average production per hectare in Alost country?—It is 1,200 kilogrammes; that is about 24 cwt.

7389. Is not that about eight cwt. an acre?—Yes.

7390. *Chairman.*] Have you reason to suppose that the cultivation of hops in Belgium might be considerably increased, without any increased expense in the cost of production?—There appears to be plenty of land suitable for the purpose, and the people whom we applied to all said, that it might be very much increased indeed. With regard to the part of Belgium between Liege and Namur, I have a high opinion of the value of the land for hop-growing; I believe they can grow better hops there than elsewhere, and at the same cost. When I was there about four or five years ago, I made some inquiries about it, and satisfied myself that it cost them about 35 francs to produce 50 kilogrammes, and I concluded that there was a large district of land that might be brought into cultivation. I am of opinion as a grower, that the hops there are superior to the hops of our low districts.

7391. When you asked these questions of the hop merchants and growers in Bavaria and Belgium, were they aware that you were making inquiries with the view of ascertaining whether they could supply the English market?—I do not know about that; I have no doubt that Mr. Uhleman understood what the inquiry was being made for, but I think with respect to the growers they did not know. I am quite satisfied with regard to Bavaria. We had time enough to make the inquiry, and I took so much pains about it, that I am quite satisfied that my costs of production in Bavaria are as near as possible.

7392. Mr. *Brand.*] Is the Committee to understand that you do not place so much reliance upon the information that you have given them with regard to Belgium as with regard to Bavaria?—I believe it to be true respecting the Alost district. As to the Poperinghe district, I had not a great deal of time to attend to it, and I had never been to Poperinghe before. I had been at Alost before, and I am able to say that my results came to about the same both times.

7393. Are you able to say that the average annual growth of hops in Belgium amounts to anything like 9 cwt. per acre?—I made some remarks four or five years ago when I travelled through the Alost district, and I think they agree, within very little, with what I have stated now. What I said then would still be true. I know that I looked through the book last night, and it seemed to me that what the people had told me four or five years ago and what they told me now was much the same.

7394. Sir *Edward Dering.*] The general result of what we gather from the statements that you have submitted to us with regard to Belgium is, that the cost of production and the freight to London may be said to be 2 *l.* per cwt.; and assuming that 1 *l.* per cwt. is allowed for profit to the grower, upon the same principle as you made the calculation with regard to Bavaria, hops might be delivered from Belgium in London at 3 *l.* and upwards?—Yes, I have no doubt they might.

7395. That is to say, 1 *l.* 8 *s.* 2 *d.* is the cost of production, and 12 *s.* the cost of freight and commission into the bonded warehouse in London, leaving 1 *l.* for profit to be divided between the grower and the merchant?—I have allowed the merchant a profit of 4 *s.* a cwt. in my calculation of 9 *s.* 1 *d.*

7396. Supposing the merchant's profit to be included in the 1 *l.*, could not the

the Belgian hops be brought into this country and sold with a good profit at 3 *s.* 16 *s.* per English cwt. ?—Yes.

7397. *Chairman.*] Do you think, that so long as they can get upon the average of years 3 *l.* 17 *s.* in their own country, they will take 2 *l.* 16 *s.* ?—I think you must remember that a great mass of the hops which go to make that average were sent over in 1854, which brought up the average.

7398. Mr. *Knight.*] I find that in the nine years which you have given, striking out 1851 and 1854, the average price of Belgian hops has been under two guineas, is not that so ?—I have little or no doubt that they have produced, upon the average, the whole of the Belgian growth of hops at between 30 and 35 francs per cwt. Then it becomes a question how much profit the merchant and the grower are to be satisfied with, and I confess that I am at a loss to conceive how it can possibly be that upon this series of years such profits can be got.

7399. *Chairman.*] We have had it given in evidence before this Committee that the average price of hops in England of late years has been 6 *l.* 18 *s.* ; if the Belgian growers can send hops here remuneratively at 2 *l.* 16 *s.*, cannot he afford to pay the duty, and yet sell under 6 *l.* 18 *s.* ?—I do not know what the average price of hops in England is ; I am not prepared to speak as to that.

7400. How do you account for the fact that the Belgian grower does not compete with us now ?—It seems to me, from what I understand of the foreign hop trade, that they grow for their own market, but that the four or five districts which grow hops abroad grow considerably more than they want for their own use, and that they export them as they may be required ; but if there is to be a great increase in plantation it will be an increase for the English market, and therefore, that increase will not be competed for ; it will be entirely an increase grown to come to England.

7401. Do I rightly understand you to say, that the foreign planters grow much more than is required for their own consumption ?—Yes.

7402. How do you reconcile that with the inordinate profits which they make ? —I consider that this is the reason of it; they grow more than they require, and they supply the foreign merchants of these various countries : Russia, Sweden, and all Scandinavia and Holstein, and all these countries take a considerable quantity of hops, and they are competed for and bought just as we buy our own. Therefore, I do not think that has much reference to what would take place if there were a great increase upon the present plantation ; because I think that that would be only grown for the English market, and therefore we should have it at the proper price. But it is exceedingly difficult to answer this question. It is a question about which a man might, after long study and consideration, come to some satisfactory opinion ; but it is impossible to give an opinion off-hand. I think that the Committee have had it stated in evidence before them, that Poperinghé hops are no better than Alost hops. I believe that not to be true, for in Alost country especially I saw a considerable portion of red-bine hops, but in Poporinghé the vast majority are white-bine hops. I did not see a sample of Poporinghé hops, and therefore I have no right to pronounce upon their quality ; but the price is from 3 fr. to 10 fr. higher than that of Alost hops.

7403. Mr. *Knight.*] Is not it your general impression that, if the Excise duty and the Customs duty are taken off, Germany can supply hops that will supplant the best qualities of English hops, and that Belgium will supply hops that will supplant our worst qualities ?—I should wish to make one observation about Belgian hops ; the hops which I saw were crushed in a most remarkable way into the pockets ; but it seemed to me that if there were proper places erected for drying, Belgian hops would be very nearly as good as our ordinary Mid-Kent hops. I find that the Bavarian hops are so decidedly a superior article, that they will be bought in preference to our own ; and they will either throw all the Mid-Kent and East Kent plantations out of cultivation, or we shall take the place of the Weald of Kent and Sussex. If, on the other hand, Belgian hops can be produced as good as ours, they will take the place of the Weald of Kent and Sussex, and if the Bavarians take our place, the whole of the land will be thrown out of cultivation ; at any rate, it is quite evident that under any circumstances all the countries that produce the inferior hops will be thrown out of cultivation, because they can produce hops of a better quality at a much less price abroad.

S. L. Lucas, Esq.

30 July 1857.

7404. *Chairman.*] Do I rightly understand you to say that you decline to offer an opinion upon the quality of the foreign hops?—I do. I might give an opinion, but it would not be worth much; but it seems to me that under any circumstances all the low class hops must go out of cultivation in a certain period; and then it would become a question whether our hops were so superior in quality, or whether they could be produced by any alteration in the system of cultivation of so superior a quality as to stand our ground against the fine hops of Bavaria and Belgium; so that we may have a chance of struggling on; but the growers of the low classed districts will be demolished.

7405. Mr. *Bass.*] They will be demolished by the production of a better article at a lower price?—By the production of an article at a lower price; if they produce an equally good article abroad it will equally displace the English hops.

7406. Will not the consumer derive an advantage from this reduction of price?—I have no doubt that eventually the consumer will derive an advantage; but the question is, whether the consumer gets such an advantage as to counterbalance the ruin of so many people.

7407. Mr. *Knight.*] Have they bad years and good years abroad as we have in England?—Yes; it seemed to me that perhaps in the Bavarian districts they were rather wider apart, the one from the other. So far as I could recollect, it was seldom the case that they had what you may call a bad crop; they generally grow as much as half a crop; in Belgium they vary; every now and then they do not grow any in one district; but if in one district they do not grow any, they generally grow some in another, but there is no very marked difference between them and us. I should wish to add, that I was told that in 1854 as many hops of the better sorts would have been sent from that country into this country, if the duty had been 2 *l.* 5 *s.*, as were sent, it being reduced to 1 *l.*; and that the opinion of the merchants and other people there was, that it was a mere loss of revenue to the Chancellor of the Exchequer, and of no use to anybody; all the Bavarian hops would come under that category, but not all the Belgian hops.

7408. Mr. *Bass.*] Do you consider that if the full duty had been paid upon the hops, they would have been mixed with old hops in the way which you have described?—If there had been a duty of 2 *l.* 5 *s.*, it would have kept them out, which would have been a good thing for the consumers.

7409. Would not the revenue have lost the duty upon them?—Yes; but then I should infer that the number of those were comparatively few. I cannot conceive that any large quantity were so sent; I do not know the proportions; but you must bear in mind that the duty would have been considerably more even then; at all events, the opinion of the Bavarian hop merchants was, that it was a mere loss of revenue.

7410. Do you conceive that the revenue was only affected by the quantity of hops that paid the duty in that year?—I am offering you the opinion of the Bavarian merchants and not my own.

7411. If the introduction of the greater quantity of hops caused a greater quantity of malt to be consumed, would not that have made some compensation to the revenue for the loss sustained by the reduction of the hop duty?—I cannot imagine that the quantity of malt consumed by those exceedingly bad hops, that would have been kept out by the higher duty, would have made a material alteration. There could not have been much strength in hops that had been brewed once, and sulphured and packed again; any one who brewed them must have found them very bad, and, as I say, they doubtless soon discovered it; they could not have used much of it.

7412. Mr. *Knight.*] You do not think that the Belgian hops would have been kept out; you only referred to the damaged hops; is not that so?—I think that the worthless hops would have been kept out.

Charles Pressly, Esq, called in; and further Examined.

C. Pressly, Esq.

7413. *Chairman.*] WHEN you gave evidence before the Committee on the former day, you told the Committee that you considered that the hop duty has the effect of a duty upon beer?—I did; and I think so still.

7414. Presuming that to be the case, have you turned your attention to the consideration of whether it would not be advisable to take off the hop duty and add

add so much to the malt duty?—I have considered that proposition; and I have arrived at the conclusion that it might be desirable to make that change. I find that, upon an average for the last 20 years, the revenue from hops was 337,817 *l.* I have taken the average of 20 years, because, any less period would not give a fair proportion. The duty upon malt at present is 2*s.* 8½ *d.* and two-tenths of a farthing per bushel. If you add to that 2¼ *d.* and eight-tenths of a farthing, it would produce 365,000 *l.* Therefore the duty upon hops for the last 20 years being 337,000 *l.*, the revenue would be much in the same state.

7415. How much would it increase the duty upon malt?—It would increase the duty 2¼ *d.* and eight-tenths of a farthing; this would make the duty 1 *l.* 3 *s.* 4 *d.* a quarter, and that increase would produce about the same revenue that we get upon the average on hops for the last 20 years.

7416. Would not the revenue derive some gain from the fact of not having the expense of collection?—That is very trifling, about 4,000 *l.* per annum, but the increase in the malt duty would cause no addition to the cost of collection. At present the duty upon malt is 21 *s.* 8 *d.* per quarter.

7417. Mr. *Brand.*] Is it your opinion that the additional duty of 1 *s.* 8 *d.* a quarter would produce more than the present duty upon hops?—It would a trifle.

7418. *Chairman.*] How many quarters of malt does the country consume annually?—Five millions nearly.

7419. Mr. *Brand.*] Would the additional malt duty be a more certain source of revenue?—It would be a more certain source of revenue undoubtedly, because the hop duty varies very much. For the year 1854, we did not collect more than 86,422 *l.* In the following year the duty amounted to 728,183 *l.*

7420. Mr. *Bass.*] Are you not aware that, upon the average of the last 10 years, the quantity of hops grown in the country has amounted to 200,000 *l.* whole duty, which is equal to nearly 400,000 cwts.?—Possibly.

7421. Within the last 20 years, has not the increase in the consumption of malt been considerable?—It has not, except in the last year.

7422. *Chairman.*] Would not you also have the advantage at the Board of Inland Revenue of getting rid of the constant difficulties that there are in levying the tax upon the hop-growing districts?—We should, looking at the number of different periods which I gave in my last examination, when the time for paying the duty has been extended. In the present year we have extended the time from 15th May to the 15th of the present month; it is now in course of collection.

7423. Then of course the effect to the consumer, considering it to be a tax upon beer, is precisely the same?—Yes.

7424. Mr. *Beach.*] Do you think that it would be just towards the producer of barley to make such a change?—I have nothing to do with the question between the barley grower and the hop grower; I do not know that it would make any difference; it would be a very trifling increase of duty on malt.

7425. Mr. *Knight.*] Do you think it would be just towards the producer of hops?—Unless there was a protective duty, it would I dare say put some hop lands out of cultivation.

7426. *Chairman.*] With reference to its affecting the barley grower, is it not your opinion that, as it would not increase the cost of manufacturing beer, it would not diminish the consumption of malt in making the beer?—Not to any extent.

7427. Sir *Edward Dering.*] Supposing the plan were carried out, do you think it would be possible to retain the customs duty?—It would be possible; whether it is the right principle or not I should not venture to say.

7428. Mr. *W. Martin.*] In your estimate of the hop duty for the last 20 years, have you included the duty upon foreign hops?—No, only English hops.

7429. Would not the Chancellor of the Exchequer lose what he gained by the duty upon foreign hops?—Yes; but it is not a great deal, except in the years of small growth of hops in this country.

7430. Mr. *Knight.*] Supposing the effect of the change you propose would be to injure the barley grower, and almost to destroy the hop grower, would not the revenue alone benefit by it?—There would be no benefit to the revenue; but you now tax one article, beer, through two articles, malt and hops; and if you raise a certain amount of revenue from beer, it seems to me to be much simpler to raise it upon one article than upon two.

C. Pressly, Esq.

30 July 1857.

7431. Mr. *W. Martin.*] Is not malt used in the manufacture of spirits as well as in the manufacture of beer?—Yes; but we do not charge duty upon that. They are allowed to distil with malt which has paid no duty.

7432. Mr. *Knight.*] If there is no benefit accruing to the revenue by this change, to whom would the benefit accrue if it would injure the barley grower, and almost destroy the hop-grower?—It gives greater facility to collect the tax upon one article than upon two.

7433. You told us that the Excise duty upon hops cost little to collect?—Yes, undoubtedly.

7434. How much per cent. is the cost of collection?—On an average of the last three years it was 17 *s.* 8 *d.* per cent.

7435. Does the collection of the duty upon malt cost more or less?—The whole of the Excise Revenue does not cost more than three per cent.

7436. Sir *Edward Dering.*] Then is it not the fact that the only advantage of this scheme to anybody concerned in it would be to facilitate the collection of the revenue?—It would facilitate the collection of the revenue.

7437. Mr. *Bass.*] Have you considered the question in all its relations?—Certainly not; it did not belong to me to consider it.

7438. It has been suggested to you that it would destroy the hop-grower; do you adopt that suggestion?—I do not apprehend that it would destroy the hop-grower.

7439. Sir *Edward Dering.*] Is it not the fact, that, according to your view, the great object in making the change would be not for the purpose of improving the condition either of the barley-grower or of the hop grower, but of facilitating the collection of the revenue?—Yes; certainly it would be no advantage to the barley-grower, nor could it be to the hop-grower.

7440. May the Committee assume that the grounds for your suggestion simply and exclusively are, because it would facilitate the collection of the tax?—Exactly; it is for that simply.

7441. Are you prepared to affirm the suggestion proposed to you, that it would necessarily ruin the hop-grower?—Certainly not.

7442. Or injure him at all?—I think not.

7443. Mr. *Knight.*] Is not it the fact, that the fewer the articles upon which the revenue is raised, the easier it would be to collect it?—Yes, of course.

7444. Would not it be a great saving to the revenue if the Customs duty were taken off coffee, and put on tea?—Yes.

7445. Mr. *Bass.*] Is there any analogy between the two cases?—No, none whatever.

7446. Mr. *W. Martin.*] If from any motive the Chancellor of the Exchequer should think it well to introduce free trade in hops, this is the mode in which it might be done without injuring the revenue?—Quite so; I find that a small addition to the malt duty, raising it from 2 *s.* 8 ½ *d.* to 2 *s.* 11 *d.* per bushel, will produce, upon the average of 20 years, the same amount of revenue as the country gets from hops.

7447. *Chairman.*] And it would be more certain and more regular?—Quite so; and we should avoid the unpleasantness of being occasionally called upon to postpone the hop-duty collection.

7448. Have you at the Board of Inland Revenue ever had occasion to prosecute brewers for using a substitute for hops in beer?—Occasionally, but not very often; we have certainly done so occasionally; we have prosecuted some persons for using salt; there are several articles that are not allowed to be used in brewing.

7449. Could you give the Committee an account of how many prosecutions you have instituted against brewers for the last 10 years?—Certainly.

7450. Mr. *Bass.*] Will you distinguish in your return between common brewers and licensed victuallers who brew, and retail brewers?—Yes.

7451. *Chairman.*] Would you be good enough to furnish the Committee with a return of the number of officers you employed in each collection for the last year?—Certainly.

7452. Do they vary much?—Not a great deal; it depends upon the growth of hops in some slight degree.

Frederick St. John, Esq., called in; and Examined.

7453. WHAT office do you hold in the Board of Customs?—Surveyor-general of Customs in London. *F. St. John*, Esq. 30 July 1857.

7454. Could you inform the Committee of the amount of foreign hops that have been imported into this country during the last 10 years, classifying the different countries that they come from?—I have an account which gives that information (*producing the same*). It shows the quantity imported from each country during the last 10 years. I have also an account for the same period of the quantity exported, by which it appears that the quantity of foreign hops imported has been nearly equal to the quantity of British exported.

7455. Mr. *Brand.*] Does that return specify the countries to which the hops have been exported?—It does.

7456. *Chairman.*] Will you hand those returns in to the Committee?—(*The same were handed in*). *Vide* Appendix.

7457. Mr. *Wykeham Martin.*] Do you think that the amount of beer exported would make up the difference between the amount of hops imported and the amount of hops exported?—Yes, I have a return of the value of the beer exported.

7458. *Chairman.*] Will you hand that in to the Committee?—(*The same was handed in.*) *Vide* Appendix.

7459. Mr. *W. Martin.*] Do you allow a drawback upon hops exported in the shape of beer?—They get a drawback upon the beer, which I think is equivalent to the duty upon the malt and the hops used in the beer.

7460. How do you calculate it?—That rests with the Inland Revenue. We certify that it is beer, and take care they have a sample.

7461. In the estimate which you have given in, is the amount of hops exported in the shape of beer included?—No; but I have a return here which shows that last year the declared value of the beer exported was upwards of a million and a half.

7462. Ought not the amount of hops used in that beer to be added to what you have given in your former return, in order to show how much has been actually exported?—Yes.

7463. Mr. *Brand.*] Could you state how many hundredweight of hops have been exported in the shape of beer?—No, I could not; the officers of Inland Revenue no doubt could do that.

7464. *Chairman.*] The Customs duty upon foreign hops has varied at different times; could you state to the Committee the different periods in which alterations have been effected in it?—They are shown in the return which I have handed in, for the last 10 years.

7465. Was not the Customs duty upon foreign hops at one time 12*l.*?—Yes; but up to 1846 it was 4*l.* 10*s.*

7466. When was it reduced to 4*l.* 10*s.*?—I am not aware of the exact date.

7467. Will you furnish the Committee with a statement of the alterations that have been effected in the Customs duty upon foreign hops in the present century?—Yes, I will.

7468. What amount of tare is allowed upon foreign hops imported into this country?—It varies very much; it depends upon what country they come from: the officers estimate it upon each importation: that rests upon the judgment of the officers with regard to each importation.

7469. Mr. *Brand.*] It appears, by the return that you have handed in, that 4,330 cwt. of hops were exported to the Hanse Towns; can you explain that circumstance?—I think it was most probably the result of some speculation. It is not uncommon, after a great speculation, for hops to become almost valueless; and I have known them to be exported merely for the sake of getting the drawback.

7470. *Chairman.*] Do you think that the revenue lost by the reduction of the duty upon foreign hops in the year 1854?—I think that, from what I have heard, the quantity of British hops was so small that year, that a considerable importation would have taken place without the reduction.

7471. Do you think that the importations were so much increased in consequence of the reduction as to make up to the revenue for what it lost by the reduction?

F. St. John, Esq.

30 July 1857.

reduction?—I think that the effect of it is being felt now. They have introduced a new description of hops which are gradually coming into use. There seems to be a steadily increasing trade growing up in foreign hops. I think the effect of the reduction will be to increase the quantity of foreign hops imported into this country. I believe there is no question of it.

7472. Sir *Edward Dering*.] Was not the scarcity of English hops in that year so great that foreign hops would have been imported supposing the duty had remained as it was, and that the diminution of the duty did not make much difference?—A sudden alteration of duty frequently induces large importations, and therefore I think that it probably did so in this case.

7473. Mr. *Bass*.] Does not it generally produce importations of a low character?—Yes.

7474. Mr. *Brand*.] Is it within your knowledge that British hops of a very inferior quality are occasionally exported merely with the view of obtaining the drawback, and that they are then thrown overboard?—Yes; some years ago it was part of my duty to examine the hops that were exported, and I examined a quantity that appeared very inferior; and I made a great number of inquiries in order to ascertain whether they were worth the drawback, which the law requires they shall be; and whenever I inquired, I was told that they were worth the drawback, and consequently, after much discussion, they were allowed to be shipped. But I heard afterwards that the North Sea was covered with them.

7475. *Chairman*.] When the drawback is allowed upon any hops, do you make any inquiry as to their age?—We require them to be in the original pockets, and we examine them with great care to see that it is so.

7476. You have no rule limiting the age of hops on which a drawback is allowed?—No.

7477. Mr. *Brand*.] Did you ever reject hops because they were not worth the drawback?—The question occurred on one occasion; we objected to certain hops, and the parties threatened a prosecution for detaining them, and after some time, from the general evidence of the trade, we found that they were worth the drawback, and they were allowed to go. The law requires that they shall be worth the drawback, and these hops were declared to be worth the drawback.

7478. Mr. *Knight*.] Did I rightly understand you to say that the exportation of hops has increased?—The importation of hops is increasing; from some countries there is a steady increase; and the exportation of British hops has also increased, particularly to Australia. I think the returns will show that it is nearly equal to the importation.

7479. *Chairman*.] If you include the hops exported in the shape of beer, is not it larger?—In that case it is much larger.

7480. Mr. *Knight*.] Do you think that the Customs duty acts as a prohibitory duty?—I think not, upon the finer qualities of hops, but upon the lower qualities it does.

7481. Mr. *Bass*.] Would you qualify that answer by confining it to "the finest qualities"?—I am scarcely sufficiently acquainted with the trade to say whether it is the finest qualities or the finer qualities. I have derived my information from the officers, and they say that the best qualities go into consumption.

Mr. *Thomas Parkes*, Jun., called in; and Examined.

Mr. *T. Parkes*.

7482. *Chairman*.] I BELIEVE you have been with Mr. Lucas in his tour on the continent?—Yes.

7483. You are a hop-factor?—Yes.

7484. Could you give the Committee an opinion as to the different qualities of hops which you saw there?—I must say first of all, that, owing to the time of year, we had a difficulty in procuring samples of the different qualities of hops; at Spalt we could not obtain a sample; the samples we obtained were only at Nuremberg, and there were very few to be had. There were some samples of Hersbruck hops, which were certainly of a very good useful quality; I should think fully equal to the average run of Mid-Kents, but not to the best growths. There were some of the second sort from the same district which were inferior, more resembling our grape hops.

7485. As

7485. As to the Holetau district, what is your opinion as to the quality of the hops grown there?—The samples I saw were certainly uncommonly good; I should consider (with the exception of our best growers) that they were fully equal to the average of Mid and East Kent hops.

7486. Were they equal to the Hersbruck hops?—They were superior to the Hersbruck hops.

7487. Sir *Edward Dering.*] Can you give any reason why these hops should be sold at a lower price than Hersbruck hops?—No, certainly not; nor do I think that they are sold at a lower price; they are produced at a lower price.

7488. Are they about equal to the average East Kent hops?—Not to the best East Kent hops; but I should think they are equal to the average run of Mid and East Kent hops.

7489. *Chairman.*] Are the Hersbruck and Holetau districts near to each other?—No; they are at a considerable distance apart; it is nearly 12 hours' journey from Nuremberg to Holetau, and Hersbruck lies in a different direction.

7490. Sir *Edward Dering.*] How many hours' journey in the other direction?—It took us four hours to go from Hersbruck to Nuremberg in a carriage.

7491. Would it be about 60 miles?—I should think more than that; but it is a mere guess, I have no data to judge by. You go to Holetau by railway a great part of the way, and it is a nine hours' journey by railway to begin with.

7492. *Chairman.*] Is there any prohibition against Holetau hops coming into the Hersbruck district?—Certainly not.

7493. Can you give any explanation of the reason why the Holetau hops have not so superseded the Hersbruck hops?—You must not take the cost of production of the Hersbruck city, which is a limited district, and cannot be extended, to compare with the cost of Holetau. If you take the cost of the production in Hersbruck country, you will find that the average cost of production is lower, and would better compare with the average cost of Holetau.

7494. Do you consider that the Holetau hops are superior hops?—Judging from the samples I saw, I should say so. The samples were very limited; in fact there were very few to be had. It was hardly a fair mode of judging.

7495. Mr. *W. Martin.*] Had not the best hops been sold?—Certainly; I could not see a sample of the best Spalt city hops at all.

7496. *Chairman.*] Did you see the Bohemian hops?—No, I did not.

7497. And you did not see any of the best Bavarians?—No, I did not; I could not meet with any samples of them.

7498. Mr. *W. Martin.*] Did you see any Belgian hops?—Yes, I was able to procure one sample.

7499. Where did you see that?—At a place a little way out of Alost.

7500. *Chairman.*] With what class of English hops should you compare them?—I should compare them with our Weald of Kent and Sussex hops; I think they are stouter and stronger in their growth; but the management is bad, and until that is improved, of course they cannot come into their proper position.

7501. As far as the hop itself, do you consider the Alost hops about equal to the lowest priced English hops?—I think they are equal if not superior, to the Weald of Kent hops.

7502. Mr. *Brand.*] That is to say, provided they are properly prepared?—Provided they are properly prepared.

7503. In their present condition, they would not compete with the Weald of Kent and Sussex hops?—Yes, I think they would compete with the Weald of Kent and Sussex hops at a lower price; the mode of management is bad, and requires improvement.

7504. Did you see any Poperinghe hops?—Not any samples.

7505. Did you see any of the more ordinary growth of Bavarian hops?—Yes; I saw a sample of a mixture of different sorts of the inferior hops from Bamberg and other places; they are of a coarser description, more resembling a sample of English grape hops.

7506. Were they hops good enough to be employed by respectable brewers in London?—I should think they were; I am not a judge of what brewers would use, of course.

7507. Were they much inferior to the sample of Alost hops?—I should think they were about the same thing. I can confirm all the calculations that

Mr. *T. Parkes.*

30 July 1857.

Mr. Lucas has made. In point of fact, the evidence was jointly taken, and the calculations were made together.

7508. Sir *Edward Dering.*] Are you prepared to confirm his evidence in every respect?—Yes.

7509. What is the opinion at which you have arrived in regard to free trade in hops?—I quite agree with him; I certainly think that the Belgian hops must throw the Weald of Kent and Sussex out of cultivation, with free trade.

7510. Mr. *Bass.*] Is that because they will be produced at so much lower price?—Because they can be produced at a much lower price. I believe the lowest estimate given to the Committee as to the cost of the production of Sussex hops has been 3 *l.* a hundredweight; I think it is perfectly evident that these can be produced at from 25 *s.* to 30 *s.*; and the cost of transit the Committee have already received.

7511. Sir *Edward Dering.*] The Belgian hops will supersede the Weald of Kent and Sussex; what would be the effect of the Bavarian hops upon the better description of hops in England?—I should think, to supersede them, in a great measure.

7512. Mr. *Knight.*] Suppose there is a great importation of hops from abroad, which would be the first class of hops to be thrown out of cultivation?—That is a matter of opinion. I should think the Weald of Kent and Sussex would go first.

7513. *Chairman.*] Is your business as a factor principally in Sussex or in Kent hops?—In Sussex, Mid-Kent, and Weald of Kent.

7514. Mr. *Knight.*] What were the selling prices of Sussex hops in September, October, and November 1854?—In 1854 the average price in September I should give at about 18 *l.* 10 *s.*; in October, 15 guineas; and in November, 15 *l.* 10 *s.*; and in December, nominally about 15 *l.* 5 *s.*

7515. Why do you say nominally?—Because we had little or no trade doing at that time.

7516. Not in Sussex hops?—Not to any great extent. In fact the foreign importations completely checked the market, and almost put a stop to trade.

7517. Did it put a stop to the sale of the Kent hops?—It did so more or less; I think it affected all sorts.

7518. So that you could hardly sell them at all?—Certainly for two or three months we had a great difficulty in selling any.

7519. In March, April, and May 1855 did a reduction take place in the price of English hops?—In January we sold a few at from 14 *l.* 10 *s.* to 15 *l.*; in February they were offered at still lower prices, but there was no sale; in March we sold a few at from 11 guineas to 13 *l.* 10 *s.*; in April there was a little more doing at from 10 *l.* to 11 *l.*; in May there was a tolerably fair demand at the reduced price of 10*l.* to 11 *l.* 10 *s.*

7520. Can you speak of the importation of foreign hops during the blight at from 19 *l.* to 10 *l.*?—I think there is no question that the importation of foreign hops brought down the price of Sussex from 19 *l.* to 10 *l.*

7521. Were not a good many American hops brought in?—There were, and they principally injured the trade for Sussex hops.

7522. Were they pretty good?—They were taken as a substitute in consequence of the price.

7523. *Chairman.*] Would they be taken before our own English hops?—They would not be taken in preference to our own new Sussex hops at the same price, owing to their flavour. At that time of course the American hops were completely underselling us.

7524. At what sort of prices could they be brought in?—We were not selling them ourselves, but I obtained information from other people who were selling them, and it was also confirmed by a merchant. In October they began at 12 *l.* duty paid, and in November they went down to 11 *l.*; in December they were sold at 10 guineas; in January at 9 *l.* 5 *s.* By the end of January they had gone down as low as 8 *l.* 10 *s.*; in February they went down to 7 *l.* 13 *s.*; in March to 8 *l.* and 7 *l.* 10 *s.*; in April they were from 7 *l.* 6 *s.* to 6 *l.* 10 *s.* and in one case to 7 *l.* 15 *s.*; in May 6 *l.* 10 *s.*, and they continued so throughout May; in one case 8 *l.* is mentioned; in June they were at 7 *l.* 10 *s.*, 7 *l.* 5 *s.*, and 6 *l.* 15 *s.*

7525. Mr. *Bass.*] What was the highest price at which Americans were sold during the season?—I believe they at first produced 12 *l.* 15 *s.* and 13 *l.*, but after that they dropped considerably.

7526. When

7526. When was that?—That was in October.

7527. What were they in November?—£. 11. 10 *s.* and 11 *l.* I do not think that then they much interfered with us. In December they dropped down to 10 *l.* 10 *s.*, and that had the effect of stopping our trade for Sussex hops. In January they were 9 *l.* and 8 *l.* 10 *s.* In February, at 8 *l.* and 7 *l.* 15 *s.*; and they ranged down to 6 *l.* 10 *s.* afterwards.

7528. Will you give the Committee the prices of Sussex hops, and the prices of American hops, in November and December 1854, and January 1855?—In November, the price of American hops was 12 *l.*, and that of Sussex hops was 15 *l.* 10 *s.* In December, the price of Americans was 10 *l.* 10 *s.*, and that of Sussex hops was 15 *l.* 5 *s.* nominally; but there was no sale, or next to no sale.

7529. Mr. *Knight.*] Was there a sale for the Americans?—There was a sale for the American hops, but not a sale for the English.

7530. Mr. *Bass.*] The nominal price for Sussex hops being 50 per cent. higher than Americans?—The nominal price being 15 *l.* 5 *s.* against 10 *l.* 10 *s.*

7531. What were the prices of the two classes of hops in January?—In January, the Americans averaged about 9 *l.* 10 *s.*, and the Sussex hops were at a nominal value of from 14 *l.* 10 *s.* to 15 *l.* 5 *s.*; but there was little or no sale.

7532. What do you mean by a nominal value?—That was the price that we called them nominally; but we were not able to get on with them.

7533. Were they unsaleable?—They were unsaleable.

7534. Might you not as well have said that the nominal value was 25 *l.* 10 *s.*?—There was nothing to warrant a rise in price.

7535. Do you mean to say there was no sale in January?—There was little or nothing, according to our books.

7536. Was there any sale?—By referring to the books I could say. There were literally none selling; but those were the prices that we endeavoured to obtain.

7537. Did you sell any in February?—In February we sold next to nothing. We might have sold a few pockets; but it was nothing worth mentioning.

7538. At what price were they sold?—We asked a lower price than in January; but still there was no sale.

7539. What did you offer them at?—At a lower price than 14 *l.* 10 *s.* We were endeavouring to come down to meet the Americans.

7540. What were the Americans sold at in that month?—The Americans were sold from 7 *l.* 15 *s.* to 8 *l.*

7541. Is not that only half the price at which you say that Sussex were at the same time?—It was 8 *l.* against less than 14 *l.*; you may call it 14 *l.*; but we were offering Sussex hops at a lower price than that.

7542. Does not that justify the conclusion, that in point of fact the brewers of this country, and the consumers of hops, will not use Americans when they can get anything else?—On the contrary, it was the fact that they were taking Americans (which you suppose they will not use) in preference to Sussex hops.

7543. At double the price?—At nearly double the price.

7544. But not otherwise?—That does not follow; they completely put a stop to our market.

7545. Do you say that some few Sussex were sold at nearly double the price of American hops?—There were very few; nothing that would justify us in saying that there was a demand for them at that price; in fact, the trade in Sussex hops was almost entirely stopped by the importation of foreign hops, and other sorts were affected in the same way more or less.

7546. *Chairman.*] Did you sell any hops at that price?—We were not selling any ourselves.

7547. Had you any dealing in foreign hops in that year?—No, we had not to any extent.

7548. Not in that year?—No.

7549. And your business with English hops was at that time put a stop to?—Yes, that is the conclusion of the matter.

7550. Do you judge what the effect of free trade in hops would be from what happened in the year 1854?—I judge from that, and also from the results of the information that we have obtained in Belgium and Bavaria, and the calculations that we have made.

Mr. *T. Parkes.*

30 July 1857.

7551. Mr. *Brand.*] Did I not understand you to say that you are not a foreign hop merchant?—No.

7552. You have no dealings whatever in foreign hops?—No. We once bought a few Belgian hops upon speculation. That is the only dealing that we have had in foreign hops.

7553. Mr. *Knight.*] One of the witnesses before this Committee mentioned the fact of foreign hops being brought and packed in English cloth, and being sold; did you ever know anything of that sort take place in your experience?—I know of one instance that took place at an auction sale that was got up in the city.

7554. In what year was that?—It was in the year 1855.

7555. Who was that done by?—It was done by a man of no character whatever, not by a member of the trade.

7556. What course did the trade take when it was found out?—They endeavoured to prosecute him by buying the hops; but he managed to cut away the cloth, so that there was no evidence against him, and it was obliged to be dropped; but they sent a circular to the brewers upon the subject.

7557. Have you seen that circular?—I have it here (*producing the same*).

7558. Will you read it to the Committee?—It is headed "The Country Brewers' Society," and is as follows:—"12, King William-street, City, London, 29th of March 1855. Sir, the Committee of this society having been furnished with the following information from some of the most respectable houses in the hop trade, have directed me to communicate the same to the brewers generally, that they may be put on their guard in purchasing hops; the committee beg earnestly to request that brewers will, in future, obliterate the marks upon all empty hop pockets before parting with them. I am, Sir, your obedient servant, Richard Moss, Secretary. The following attempt at gross fraud upon brewers was discovered at a public sale on the 12th instant at the Corn Exchange Rooms, Mark-lane, London. Six pockets of hops, marked 'J. J. Ellis, of East Farleigh, Kent,' and nine pockets marked 'F. B. Elvey, of Chart, Kent,' all of the growth of 1854, were offered for sale amongst others; and as it was known that these growths had been sold to two London brewers and consumed, it was certain that some person must have obtained possession of the empty pockets, and had refilled them with hops of a very inferior description (damaged and low Americans), hoping thereby to deceive those who might be induced to purchase them, solely because the marks on the pockets were those of well-known growers. They were bought by two hop merchants for the purpose of detecting and punishing the offender; and, when application was made the next morning for the hops, the buyers were informed that they would not be delivered, as the seller had learned that the Excise officers were waiting to seize them. An interview was obtained with the reputed owner (who, however, denied that they were his property), and he said that he knew it was wrong, but that the marked cloth had been destroyed before daylight that morning, and as his character was of no value to him, they (the buyers) might do what they could with him; he declined then to state who the owner was. Under these circumstances the Excise officer refused proceeding any further in the matter, as he could not seize unless the planter's marks were on the pockets. It is feared that is by no means a solitary instance of similar fraud. There is also every reason to believe that a practice exists of mixing old foreign hops (re-dried and bleached) with new Americans and Bavarians, and selling them as new Bavarians." That was the circular that was sent by the merchants.

7559. That was the way in which the merchants met it?—Yes.

Michael Thomas Bass, Esq., a Member of the Committee; further Examined.

M. T. Bass, Esq., M. P.

7560. *Chairman.*] IS there any further statement which you wish to make to the Committee?—I wish to make a few remarks with respect to a return of the average prices of hops for the 10 years ending with last year, on which I examined Mr. Richardson, and respecting which he stated that he thought it could not be relied upon as being of any value. I want to draw the attention of the Committee to this fact, that the prices having been in each of the 10 years taken upon the same principle, it would at least form a fair relative statement of the prices

M. T. Bass, Esq., M. P.

30 July 1857.

prices obtained in those years; and therefore it would answer the purpose for which I desired to obtain it, my object being to show that the interests of the hop grower are opposed to the interests of the consumer, inasmuch as short crops are always more profitable than large crops, or a succession of large crops, which not only appeared from the account furnished to me by two eminent hop merchants, but has also, I think, been proved by all the witnesses who have given evidence before this Committee. There are one or two points in this account which are so striking, that I desire to call the attention of the Committee to them. The prices which I am going to quote are the net prices, after deducting 2 *l.* per cwt. for the expenses of picking, packing, duty, and drying; and it would appear from that, that in the year 1847, when an average of 8 cwt. was grown, the net produce to the grower was 9 *l.* 16 *s.* 6 *d.* per acre, while in the year 1854, when only little more than 1 ½ cwt. per acre was produced, the net produce to the grower was 21 *l.* 4 *s.* 6 *d.* according to Mr. Richardson's account, and according to Mr. Wigan's account it was 25 *l.* 2*s.* 6*d.*; so that the Committee will see that 8 cwt. an acre in one year produced less than what 1 ½ cwt. did in the other. Then, again, the year 1853 was what was called a short crop, though not a blight, the rate of duty having been 152,000 *l.* the net produce would be, according to Mr. Richardson's prices, 60 *l.* 5 *s.* 6 *d.* Now with regard to the average prices of the 10 years, Mr. Richardson did not attach much value to them; but I desire to call the attention of the Committee to the prices sent in by Mr. Wigan, by way of comparison with Mr. Richardson's prices. A letter which Mr. Wigan writes to me is expressed in the following form: "I have the pleasure of enclosing you the exact average of prices for hops in the Borough, during four months of each year from 1847; that is for 10 years; the general average, as made from sales effected in the Borough." So that, supposing the prices of Mr. Wigan are nearly correct, that would give, upon those prices which he called exact prices in the Borough, an average result, for the 10 years, of 25 *l.* 15 *s.* 4 *d.* per acre net, which the Committee will at once see is very considerably less than what has been stated to be the average cost of cultivating an acre of hops.

7561. Could you state to the Committee the prices which you have given at various times for the different kinds of hops?—Yes; I have the prices of several years. In 1853 I paid 336 *s.*, that is 16 guineas, for Mid-Kent hops, upon the 14th of October; and for East Kent hops I paid, upon the 21st of October, 18 guineas. I think it is important that the Committee should have a price or two, at the end of the season, because they have been told that we have had no well-sustained high prices. On the 11th of January 1854, which was from the same crop, I paid 16 guineas for Mid-Kent hops. The average price which I paid for English hops for the year 1853-54 (the produce of 1853), was 14 *l.* 5 *s.* 10 *d.* In 1854 the average was 19 *l.* 14 *s.* 4 *d.* for English hops, which my house paid for more than 8,000 cwt.; and I paid, upon the 26th of March 1855, 20 *l.* 10 *s.* In 1855, the average price we paid for English hops was 6 *l.* 2 *s.* 6 *d.*, and in 1856, 4 *l.* 16 *s.* 10 *d.*

7562. Mr. *Knight.*] Will you give us some of the lower years?—I can give 1847: the average prices in 1847, were 4 *l.* 18 *s.*; in 1848, 5 *l.* 8 *s.* 6 *d.*; in 1849, 9 *l.* 16 *s.*; in 1850, 6 *l.* 0 *s.* 2 *d.*; in 1851, 10 *l.* 3 *s.* 7 *d.*; in 1852, 7 *l.* 2 *s.* 4 *d.*; and the average of the 10 years is 8 *l.* 16 *s.*

7563. Would not the quantity that you bought in a low year, be much greater than the quantity bought in a high year?—No, they were much smaller; our consumption having annually increased.

7564. Is not it the habit of brewers to lay in a stock when the prices are low?—That has not been my habit for the last 10 years; because we find that a deterioration of the quality of the hops has cost us much more money than any benefit that we could hope to derive from keeping a stock, notwithstanding the probable high prices; therefore our habit is not to keep over English hops. I do not believe that at this time we have 100 pockets of English hops in our possession.

7565. I believe you have bought this year a large quantity of Bavarians?—We have bought between 3,000 and 4,000 cwt.; speaking of what we have in store and what we have used.

7566. In the year 1854-55 did you use any Belgians?—We used hardly any; I think a few we had over from 1853.

7567. Are the Poperinghe hops, which are the best Belgian hops, to be compared

M. T. Bass, Esq., M. P.

30 July 1857.

pared with the best English hops?—No, I think not; we should give 25 per cent. more for Sir Edward Dering's hops than we should for the best Poperinghe hops I ever saw.

7568. *Chairman.*] Did you ever buy Belgian hops?—We bought a good many Poperinghe hops in 1853.

7569. What do you think of them?—We liked them pretty well as yearlings.

7570. Sir *Edward Dering.*] Do not you consider them far better than the Weald of Kent and Sussex hops?—I think I should prefer them for yearlings.

7571. Mr. *Brand.*] Were they properly prepared?—They were very well managed indeed.

7572. Sir *Edward Dering.*] Is it your opinion that, like other foreign hops, they do not deteriorate so much as the English hops?—I think they do not.

7573. Do you attribute that to the manner in which they are dried?—I should think that it was from their slower method of drying.

7574. Mr. *Beresford Hope.*] Might not English hops, dried in the same way, have the same properties?—I think so; and I have it upon the authority of one of the most experienced brewers in England, that he thinks the quality of English hops is greatly deteriorated by our sudden and rapid mode of drying.

7575. Does not the method of collecting the Excise duty cause this?—No; a man may take what time he likes; he is not required to dry in any given time.

7576. Mr. *Knight.*] Do you suppose that the hops, at the time that you bought them at 4*l.* 16*s.* 10*d.*, paid the grower, or were they below the cost of production?—That was a great crop year; in that year I do not think that the growers would boast of having made much profit, because those were the prices that we paid to the merchant, and you must deduct from that from 12 to 15 per per cent., as I reckon it, in order to show what the grower received.

7577. Sir *Edward Dering.*] Do you deduct that amount for the merchant's profit?—Not altogether. Our habit is to buy at six months, and we pay whenever it pleases us, under discount. Sometimes we take the six months, and sometimes we pay under discount. If you take the six months' interest, and various other things, I am afraid we cannot reckon upon the merchant's charging us less than from 10 to 15 per cent. more than they give to the grower.

7578. *Chairman.*] Do you consider the best quality of Bavarian hops best adapted for your purpose?—No, I prefer the best quality of Bohemians.

7579. Would you say, with respect to other classes of beer, that there is some beer for which the best English hops would be preferable to the best Bavarian or Bohemian?—I think not.

7580. Is that the opinion of the trade generally?—I think not; I think very few people in the trade have any knowledge of foreign hops whatever.

7581. Is not the Bavarian hop particularly remarkable for the strength of its bitter?—Yes.

7582. Is it equal to the best English hop in its other qualities of flavour and aroma?—Yes, it is better.

7583. Does that arise from its being sun-dried, instead of being kiln-dried?—Yes, partly, and to soil and climate. I attribute the best portion of the good qualities of Bavarian hops to their using such high poles, and having only one pole to a hill; the hops are fully exposed to the sun and the breeze, and acquire, according to my judgment, a good quality by that mode of cultivation. Then I think the soil is, upon the whole, deeper, and apparently more suitable for the purpose; the climate also is superior.

7584. Supposing the Bavarians were to attempt to grow more per acre, would the quality deteriorate?—Yes, if they were to force them by manure.

7585. In what respect do you think the Bohemian hop better than the Bavarian?—It has a more delicate flavour.

7586. Is it as strong?—Not quite.

7587. Has it as much aroma?—Yes; but it is softer, and of a more agreeable kind.

7588. Do you agree in what has been stated by some of the witnesses before this Committee, that English hops are damaged by too great heat being applied to them by their being, so to say, roasted?—Yes; it is a common complaint.

7589. Mr. *Knight.*] What advantage do you think the consumers will derive per barrel of beer by free trade; supposing the Excise duty and foreign duty were taken off, what reduction per barrel should you be prepared to make?—I have

have not made an exact calculation, and I do not think that on an immediate reduction of the Excise and Customs duties there would be a new arrangement of prices arising solely out of that; but I have no doubt whatever that in the long run the consumers would have the full benefit of the reduction of duty.

7590. If there was not a new arrangement of prices immediately, would not the profits at first go into the pockets of the brewers?—It might for a time; and it is an advantage that brewers might reasonably expect, if you look at what they have been doing the last four or five years. In the last three years in which my accounts have been made up there was a positive loss upon my business, although we are annually increasing largely the quantity we brew. The three years ending the 1st of July 1856 showed a loss upon the gross balance of the three years.

7591. Mr. *J. Locke.*] Were not hops dear in those years?—The dearest we ever had; we made a handsome profit in 1856, but we did not make so much profit as the loss we had in 1854 and 1855.

7592. *Chairman.*] Do you, as a brewer, find any loss or inconvenience result to you in the export of beer from having to get the drawback?—Practically it gives little trouble. Our Custom-house clerk has to make the entries, and we have to go again to receive our debentures; but it is not an important hinderance.

7593. Do you get nearly the full value?—We do not get the entire value of the duty on malt; and, as I said the other day, we get nothing for the duty on hops.

7594. Mr. *Knight.*] When the consumer gets the full benefit of the reduction of the price of hops, do you think that it will reach the person who buys a pint of beer?—It will reach him either in quality or price. There is a severe competition in the brewing trade; and my impression is that the profits of the brewing trade are by no means better than the average of manufacturing trades; I think they are below the average.

7595. *Chairman.*] Do you find any advantage result from mixing English hops with foreign hops?—Our practice is to mix them, and it has only been from time to time, and by way of experiment, that we have brewed all foreign hops. But the result of those experiments has been to convince us that we should be very glad to brew all foreign hops, if we could get them upon as good terms as we can get English hops.

7596. Do you think that would be the case with other classes of beer?—I have been told that it would not, by a gentleman who has been here to-day, who is connected, perhaps, with one of the largest houses in the world in the shape of brewing. He says he is sure that he shall never brew any foreign hops.

7597. Sir *Edward Dering.*] Has he had much experience in them?—He has brewed them.

7598. Mr. *Knight.*] If the Excise laws are taken off, will not the brewers be at liberty to use any sort of bitter that they like?—I do not know that. I think they ought not to be allowed to do so.

7599. *Chairman.*] When hops are dear, are substitutes used by the lower class of brewers?—I have heard that they are, and I should think that sometimes they are.

7600. Are you aware that in 1854, when hops were dear, substitutes were largely used?—I do not think that they were largely used, but there were instances of it no doubt. I think I noticed, in the country papers, reports of prosecutions by the Excise against licensed victuallers and small retail brewers.

7601. What are the substitutes that they use?—It was said that they used camomile flower; and there is a wood called quassia, which is said to be sometimes used, which I believe to be a very innocent bitter indeed. Nothing else occurs to me that is used for the bitter. We were told some years ago, by some French people, that there was a large quantity of strychnine used; but I am not able to trace that to any solid foundation.

7602. Is not gentian sometimes used?—I have heard of gentian being used. I do not know of any one of these things being used, and I do not believe that any regular brewer of any mark, for a great number of years, has ever used anything but malt and hops and water in the manufacture of his beer.

7603. Mr. *Brand.*] Is not it the fact that hops form in fact the cheapest bitter?—

M. T. Bass, Esq., M. P.

30 July 1857.

bitter?—I should imagine it is, but I do not know the price of these other substances.

7604. *Chairman.*] What is cocculus indicus used for?—That is used to give a sort of false strength, an intoxicating quality.

7605. Has not it also a preserving quality?—I am not aware of that; I never heard of it.

7606. Mr. *Knight.*] The Act that establishes the Excise duty upon hops is the Act that prevents the use of any other bitter; should you propose that that prohibition should be continued if the duty is done away with?—I should not permit an indiscriminate use of substitutes for hops.

7607. Do you think good beer might be made with quassia or other bitters? I should think it might be made with quassia and gentian, and camomile flowers; but I do not know; it is a mere surmise.

APPENDIX.

LIST OF APPENDIX.

Appendix, No. 1.

Papers furnished by Charles Pressly, Esq.:

A Return of Excise Collections in which Hops were Grown in the last Ten Years; with the Number of Hop Planters in Each Collection - - - - - - - p. 407

A Return showing the Number of Cases in which Proceedings have been taken against Hop Planters for the Recovery of Hop Duty, and for other Offences, during the last Ten Years - - - - - - - - - - - - - - - - p. 407

Appendix, No. 2.

An Account of the Quantities of Hops Imported into the United Kingdom since the year 1846, distinguishing the Countries from which Imported; and showing, also, the Rates of Customs Duty chargeable - - - - - - - - - - - - - - - p. 408

Return of the Number of Hundredweights of Hops Exported and Imported in each Year, from the Year 1837 to the Year 1856 inclusive; also showing the Declared Value of Beer Exported in each of the same Years - - - - - - - - - - - - - p. 408

Average Prices of Hops, of British and Foreign Growth respectively, in each Year from 1848 to 1856 inclusive - - - - - - - - - - - - - - - p. 409

An Account of the Quantity of Hops Exported from the United Kingdom in each Year from 1846 to 1856 inclusive, distinguishing the Principal Countries to which sent - - - p. 409

Appendix, No. 3.

An Account showing the Quantities of Hops annually Imported, and the successive Alterations in the Rates of Duty, from the commencement of the Century to the Present Time - p. 411

Appendix, No. 4.

A Statement of the Number of Hop Assistants employed in each Collection, in the Year 1856 p. 412

A Statement of the Number of Prosecutions against Common Brewers, Brewing Victuallers, and other Brewers, during each of the last Ten Years - - - - - - - - p. 412

APPENDIX.

Appendix, No. 1.

PAPERS furnished by *Charles Pressly*, Esq.

A RETURN of EXCISE COLLECTIONS in which HOPS were Grown in the last Ten Years; with the Number of HOP PLANTERS in each Collection.

COLLECTIONS.	NUMBER OF HOP PLANTERS IN THE YEAR									
	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.
Barnstaple	12	11	6	10	10	9	9	7	9	9
Canterbury	1,486	1,420	1,225	1,281	1,259	1,294	1,317	1,265	1,506	1,506
Cornwall	2	2	2	2	2	2	2	2	2	2
Coventry	-	-	-	-	-	2	1	1	1	1
Essex	57	36	36	39	36	37	37	37	41	40
Gloucester	3	3	3	3	3	3	3	3	3	4
Grantham	4	4	4	2	2	-	-	1	1	1
Hants	232	268	211	228	224	243	252	208	297	291
Hereford	1,203	1,193	1,062	1,032	1,030	1,005	827	843	877	896
Isle of Wight	111	113	112	110	112	111	112	119	127	127
Lincoln	83	72	51	56	3	3	4	4	4	4
Lynn	1	1	-	-	-	-	-	-	-	1
Northampton	-	-	-	-	1	1	1	1	2	2
Nottingham (late Derby).	8	14	6	10	8	7	7	7	7	3
Oxford	2	2	1	-	-	-	1	1	1	1
Reading	2	2	1	1	1	1	2	2	3	3
Rochester	1,497	1,520	1,402	1,443	1,448	1,434	1,408	1,345	1,610	1,549
Shrewsbury	1	1	1	1	1	1	1	1	1	1
Sheffield	-	-	-	-	48	44	42	42	42	43
Stourbridge	58	55	60	60	91	91	257	276	265	254
Suffolk	15	15	14	13	13	13	13	12	14	13
Surrey	4	4	8	18	15	51	51	110	16	17
Sussex	1,602	1,570	1,330	1,449	1,380	1,409	1,415	1,456	1,541	1,526
Taunton	-	-	-	2	2	2	2	2	2	2
Wales, Middle	6	6	7	6	5	5	6	6	7	7
Ware	-	-	-	-	1	1	1	1	2	2
Worcester	214	222	203	201	197	198	199	207	207	203
TOTAL	6,603	6,534	5,745	5,967	5,892	5,967	5,970	5,959	6,588	6,508

A RETURN showing the Number of CASES in which Proceedings have been taken against HOP PLANTERS for the Recovery of HOP DUTY, and for other Offences, during the last Ten Years.

YEARS.	Number of Cases for the Recovery of Duty.	Number of Cases for other Offences.
1847	27	—
1848	74	—
1849	41	—
1850	129	1
1851	71	—
1852	9	—
1853	20	3
1854	7	—
1855	5	—
1856	27	1

Appendix, No. 2.

AN ACCOUNT of the Quantities of Hops Imported into the United Kingdom since the Year 1846, distinguishing the Countries from which Imported; and showing, also, the Rates of Customs Duty chargeable.

YEARS.	QUANTITIES OF FOREIGN HOPS IMPORTED INTO THE UNITED KINGDOM FROM							Rates of Duty per Cwt.			
	Hanover.	The Hanse Towns.	Holland.	Belgium.	United States of America.	Other Parts.	Aggregate of the Importations.				
	Cwt.	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*		£	*s.*	*d.*
1846	-	-	4	33	3,246	-	3,283	to 19th March -	4	10	0
								from 19th March -	2	5	0
1847	-	-	78	1	1,385	-	1,471	- - - -	2	5	0
1848	-	-	3	-	382	-	385	- - - -		,,	
1849	-	-	50	1,696	3,512	7	5,265	- - - -		,,	
1850	-	-	-	3,720	2,721	38	6,479	- - - -		,,	
1851	-	-	13	238	75	136	462	- - - -		,,	
1852	-	98	60	75	63	13	309	- - - -		,,	
1853	-	12,694	926	28,168	72	484	42,344	- - - -		,,	
1854	-	39,850	7,575	48,935	18,917	3,763	119,040	to 8th August -	2	5	0
								from 8th August -	1	0	0
1855	-	5,240	1,629	3,806	12,758	1,229	24,662	to 1st August -	1	0	0
								from 1st August -	2	5	0
1856	3,851	5,666	2,454	3,281	70	665	15,987	-	2	5	0

Office of the Inspector-General of Imports and Exports,
Custom House, London, 30 July, 1857.

John A. Messenger.

RETURN of the number of Hundredweights of Hops Exported and Imported in each Year from the Year 1837 to the Year 1856 inclusive; also showing the Declared Value of Beer Exported in each of the same Years.

	Hops Imported.	Hops Exported.			Declared Value of Beer and Ale Exported.
		British.	Foreign.	Total.	
	Cwts.	*Cwts.*	*Cwts.*	*Cwts.*	£.
1837	-	3,105	-	3,105	273,122
1838	46	9,319	-	9,319	317,359
1839	-	14,896	-	14,896	384,324
1840	107	3,610	43	3,653	422,222
1841	34	2,254	126	2,380	360,420
1842	-	4,764	-	4,764	343,740
1843	28	2,560	21	2,581	383,131
1844	267	1,125	39	1,164	437,373
1845	726	1,267	728	1,995	439,066
1846	3,283	4,538	578	5,116	381,799
1847	1,471	3,171	809	3,980	403,759
1848	385	2,906	209	3,115	410,472
1849	5,265	1,402	382	1,784	418,325
1850	6,479	2,977	1,952	4,929	558,794
1851	462	9,576	993	10,569	577,142
1852	309	6,474	156	6,630	754,627
1853	42,344	6,066	1,695	7,761	1,291,357
1854	119,040	5,238	6,824	12,062	1,314,810
1855	24,662	8,904	12,196	21,100	1,398,885
1856	15,987	12,790	2,305	15,095	1,455,043

Office of the Inspector-General of Imports and Exports,
Custom House, London,
26 June 1857.

(signed) *John A. Messenger,*
Inspector-General of Imports and Exports.

AVERAGE

AVERAGE PRICES of Hops, of British and Foreign Growth respectively, in each Year from 1846 to 1856 inclusive.

	BRITISH HOPS. Average Declared Value per Cwt. of Quantities Exported.	FOREIGN HOPS. Average Price per Cwt. of Quantities Imported.
	£. s. d.	£. s. d.
1846	6 11 –	Not ascertained for any year prior to 1854.
1847	5 14 –	
1848	4 7 –	
1849	5 9 –	
1850	5 10 –	
1851	5 13 –	
1852	4 12 –	
1853	6 11 –	
1854	11 1 –	9 10 6
1855	5 12 –	6 19 6
1856	4 8 –	4 15 –

Office of the Inspector-General of Imports and Exports, Custom House, London, 30 July 1857.

John A. Messenger.

AN ACCOUNT of the Quantity of Hops Exported from the United Kingdom in each Year from 1846 to 1856 inclusive, distinguishing the Principal Countries to which sent.

		HOPS EXPORTED. British.	Foreign.	Total.
		Cwts.	*Cwts.*	*Cwts.*
1846	Hanse Towns	165	21	186
	Belgium	—	—	—
	Australia	3,472	475	3,947
	United States	—	82	82
	Other Countries	901	—	901
		4,538	578	5,116
1847	Hanse Towns	109	80	189
	Belgium	130	—	130
	Australia	2,342	579	2,921
	United States	10	143	153
	Other Countries	580	7	587
		3,171	809	3,980
1848	Hanse Towns	302	41	343
	Belgium	—	—	—
	Australia	1,819	158	1,977
	United States	—	—	—
	Other Countries	785	10	795
		2,906	209	3,115
1849	Hanse Towns	62	15	77
	Belgium	3	66	69
	Australia	870	259	1,129
	United States	—	—	—
	Other Countries	467	42	509
		1,402	382	1,784

Appendix, No. 2.

AN ACCOUNT of the Quantity of Hops Exported from the United Kingdom, &c.—*continued.*

		HOPS EXPORTED.		
		British.	Foreign.	TOTAL.
		Cwts.	*Cwts.*	*Cwts.*
1850	Hanse Towns	207	403	610
	Belgium	—	235	235
	Australia	2,101	407	2,508
	United States	—	689	689
	Other Countries	669	218	887
		2,977	1,952	4,929
1851	Hanse Towns	4,330	50	4,380
	Belgium	517	81	598
	Australia	1,750	93	1,843
	United States	724	715	1,439
	Other Countries	2,255	54	2,309
		9,576	993	10,569
1852	Hanse Towns	656	4	660
	Belgium	63	-	63
	Australia	2,548	48	2,596
	United States	1,452	76	1,528
	Other Countries	1,755	28	1,783
		6,474	156	6,630
1853	Hanse Towns	84	93	177
	Belgium	-	400	400
	Australia	4,360	789	5,149
	United States	637	292	929
	Other Countries	985	121	1,106
		6,066	1,695	7,761
1854	Hanse Towns	24	927	951
	Belgium	-	2,571	2,571
	Australia	4,786	1,928	6,714
	United States	96	651	747
	Other Countries	332	747	1,079
		5,238	6,824	12,062
1855	Hanse Towns	88	2,908	2,996
	Belgium	-	4,049	4,049
	Australia	7,871	1,187	9,058
	United States	41	41	82
	Other Countries	904	4,011	4,915
		8,904	12,196	21,100
1856	Hanse Towns	127	676	803
	Belgium	6	424	430
	Australia	11,466	906	12,372
	United States	14	-	14
	Other Countries	1,177	299	1,476
		12,790	2,305	15,095

Office of the Inspector-General of Imports and Exports, Custom House, London, 30 July 1857.

John A. Messenger.

Appendix, No. 3.

AN ACCOUNT showing the Quantities of Hops annually Imported, and the successive Alterations in the Rates of Duty, from the commencement of the Century to the present Time.

YEARS.	QUANTITIES IMPORTED.	RATES OF DUTY CHARGEABLE.
	Cwts.	£. *s.* *d.*
1800 to 1814	Records destroyed by fire	Until 5th July 1809 - 6 10 $8\frac{12}{20}$ per cwt., exclusive of convoy duty of 3 per cent. *ad valorem*. (This duty was supended from 28th July 1800 to 26th August 1801, during which period a duty of $1\frac{3}{20}$ *d.* per lb. was levied in its stead.)
		From 5th July 1809 - 7 4 – per cwt.
		From 15th April 1813 8 11 – „
1815	-	„
1816	14	„
1817	17,166	„
1818	34,745	„
1819	48	„
1820	1	„
1821	-	„
1822	-	„
1823	572	„
1824	2,171	„
1825	3,202	„
1826	1,914	„
1827	5	„
1828	41	„
1829	28	„
1830	77	„
1831	98	„
1832	100	„
1833	291	„
1834	471	„
1835	28	„
1836	-	„
1837	-	„
1838	46	„
1839	-	„
1840	107	From 15th May 1840 8 19 $6\frac{12}{20}$ per cwt. (8*l.* 11*s.* per cwt., with five per cent. additional on that rate.)
1841	34	„
1842	-	From 9th July 1842 4 14 6 per cwt. (4*l.* 10*s.* per cwt., with five per cent. additional on that rate.)
1843	28	„
1844	267	„
1845	726	„
1846	8,283	From 19th March 1846 2 5 – per cwt.
1847	1,471	„
1848	385	„
1849	5,265	„
1850	6,479	„
1851	462	„
1852	309	„
1853	42,344	„
1854	119,040	From 8th August 1854 1 – – per cwt.
1855	24,662	From 1st August 1855 2 5 – „
1856	15,987	„

Office of the Inspector-general of Imports and Exports, Custom House, London, 31 July 1857.

John A. Messenger.

Appendix, No. 4.

Appendix, No. 4.

A STATEMENT of the Number of HOP ASSISTANTS employed in each Collection, in the Year 1856.

Canterbury	53
Hants	9
Hereford	42
Isle of Wight	5
Rochester	60
Sheffield	1
Stourbridge	15
Suffolk	1
Sussex	66
Worcester	12
TOTAL	264

Inland Revenue, 3 August 1857.

A STATEMENT of the Number of PROSECUTIONS against COMMON BREWERS, BREWING VICTUALLERS, and other BREWERS, during each of the last Ten Years.

YEARS.	NUMBER OF PROSECUTIONS.								
	Common Brewers.			Victuallers who Brew their own Beer.			Other Brewers.		
	For using Articles in Beer as a Substitute for Hops.	For using other Ingredients, such as Grains of Paradise, Capsicums, &c.	TOTAL.	For using Articles in Beer as a Substitute for Hops.	For using other Ingredients, such as Grains of Paradise, Capsicums, &c.	TOTAL.	For using Articles in Beer as a Substitute for Hops.	For using other Ingredients, such as Grains of Paradise, Capsicums, &c.	TOTAL.
1847	2	3	5	—	—	—	—	—	—
1848	-	3	3	-	-	-	-	1	1
1849	-	3	3	-	2	2	1	1	2
1850	-	-	-	-	15	15	-	15	15
1851	-	3	3	-	13	13	-	18	18
1852	-	1	1	-	7	7	-	4	4
1853	-	4	4	-	7	7	-	21	21
1854	1	11	12	-	12	12	-	24	24
1855	1	5	6	1	6	7	-	6	6
1856	-	5	5	-	3	3	-	4	4

Inland Revenue Office, 3 August 1857.

INDEX

TO

REPORT

FROM THE

SELECT COMMITTEE

ON

HOP DUTIES.

Ordered, by The House of Commons, *to be Printed,*
7 *August* 1857.

252—I.—Sess. 2.

ANALYSIS OF INDEX.

ALPHABETICAL and CLASSIFIED LIST of the PRINCIPAL HEADINGS in the following INDEX, with the Pagings at which the same will be respectively found.

	PAGE
ACREAGE DUTY:	
1. *Amount equivalent to the present Excise Duty*	1
2. *Economy in Collection, if an Acreage Duty be adopted*	1
3. *Approval of an Acreage Duty, more especially of a 3 l. Duty*	1
4. *Disapproval of an equivalant to the present Duty*	2
5. *Objections generally to an Acreage Duty; inequality thereof*	2
Hodges, Thomas Law (The late)	29
American Hops	2
Area of Cultivation	2
Free Trade	23
Hampshire	27
Herefordshire	29
Over Supply	38
Produce	41
Sussex	51
Worcestershire	58
BAVARIA:	
1. *Generally as to the Cost and Character of the Hop Cultivation*	4
2. *Area under Cultivation; facility for extending it*	6
3. *Produce per Acre; less uncertainty than in England*	6
4. *Processes of Picking, Drying, and Packing*	6
5. *Quality of the Hops: their superiority to English Hops*	6
6. *High Prices of Bavarian Hops in England*	7
7. *Prices in Bavaria, and additional cost if sold in England*	7
8. *Quantity exported, and quantity consumed at home*	7
9. *Employment of English Capital in the country*	7
10. *Imports from England*	7
11. *Apprehended injurious importation of Bavarian Hops, if Duty free*	7
12. *Dissent from the foregoing conclusion*	8
13. *Bavarian Beer*	8
Customs Duty, 2, 3	15
Free Trade	23
Malt and Malt Duty	38
Beer	8
Brewers	11
Consumption	13
Malt and Malt Duty	38
BELGIUM:	
1. *Character and Cost of the Hop Cultivation generally*	9
2. *Quality of the Hops, as compared with English Hops*	9
3. *Alost Hops*	10
4. *Poperinghe Hops*	10
5. *Acreage and Produce; means of Extension*	10
6. *Exports to England*	10
7. *Price in Belgium, and probable price in England, if the Duty be abolished*	10
8. *Generally as to the effect of Free Trade upon competition*	11
Customs Duty, 2, 3	15
Free Trade	23
Bohemia	11
Bonding	11
Brewers	11
Beer	8
Capital of Hop Growers	12
Collection of Duty	13
Acreage Duty, 2	1
Bonding	11
Payment of Duty	38
Cost of Cultivation	13
Bavaria, 1	4
Belgium 1, 3, 4,	9
Drainage	19
Manure	34
Oast-houses	37
Poling	39
Profit or Loss of Hop-growing	41
Wages	55
CUSTOMS DUTY:	
1. *Amount of the Duty; alterations since its Imposition*	15
2. *Reduction in* 1854; *effect thereof upon Imports and Prices*	15

CUSTOMS DUTY—continued. PAGE

3. *Reduction or Abolition Generally; objections thereto* - - - - - - 16

Bass, Mr. - - - - - - - - 4
Bavaria, 11. 12 - - - - - - 7
Belgium, 7. 8 - - - - - - - 10
Free Trade - - - - - - - 23
Distress - - - - - - - - - 18
Colegate Hop - - - - - - - 13
Forced Sales - - - - - - - 23
Full Crops - - - - - - - 25
Loans to Growers - - - - - - 31
Over Supply - - - - - - - 38
Profit or Loss of Hop-growing - - - - 41
East Kent - - - - - - - - - 19
Acreage Duty, 3. 5 - - - - - - 1
Bavaria, 11. 12 - - - - - - 7
Belgium, 7. 8 - - - - - - - 10
Cost of Cultivation - - - - - - 13
Customs Duty, 3 - - - - - - 16
Excise Duty - - - - - - - 20
Free Trade - - - - - - - 23
Golding Hop - - - - - - - 26
Management of Hops - - - - - 34
Prices - - - - - - - - 40
Profit or Loss of Hop-growing, 2. 5 - - - 42
Qualities of Hops - - - - - - 45
Employment - - - - - - - - - 20
Area of Cultivation - - - - - - 2
Free Trade - - - - - - - 23
Wages - - - - - - - - 55
EXCISE DUTY:
1. *Amount of the Duty; its uncertainty* - 20
2. *Partial Operation of the Duty* - - 20
3. *Objections generally to the Duty; its Abolition recommended* - - - - - 21
4. *Suggested Reduction, by the Abolition of the War Duty* - - - - - 21
5. *Doubt as to the Expediency of Total Abolition* - - - - - - 21
Acreage Duty - - - - - - - 1
Area of Cultivation - - - - - - 2
Bagging - - - - - - - - 2
Beer - - - - - - - - 8
Betting - - - - - - - - 11
Chancellors of the Exchequer - - - - 13
Defalcations (Payment of Duty) - - - 18
East Kent - - - - - - - 19
Forced Sales - - - - - - - 23
Free Trade - - - - - - - 23
Graduated or Sliding Scale - - - - 26
Loans to Growers - - - - - - 31
Malt and Malt Duty - - - - - - 33
Mid Kent - - - - - - - 35
Payment of Duty - - - - - - 38
Profit or Loss of Hop-growing - - - - 41
Remission of Duty - - - - - - 46
Small Growers - - - - - - - 49
Sussex - - - - - - - - 51
Weald of Kent - - - - - - - 56
Worcestershire - - - - - - - 58

PAGE

Exports - - - - - - - - - - 22
Bavaria - - - - - - - - - 23
Factors - - - - - - - - - - 22
Farnham - - - - - - - - - 23
Cost of Cultivation - - - - - - 13
Weyhill Fair - - - - - - - 57
Forced Sales - - - - - - - - 23
FREE TRADE:
1. *Evidence in favour of Free Trade in Hops* 23
2. *Evidence to a Contrary Purport* - - 24
3. *Effect of Free Trade on different Classes of Hops* - - - - - - - 25
American Hops - - - - - - - 2
Bavaria - - - - - - - - 4
Beer - - - - - - - - 8
Belgium - - - - - - - - 9
Customs Duty - - - - - - - 15
East Kent - - - - - - - 19
Excise Duty - - - - - - - 20
Farnham - - - - - - - - 23
Gradual Reduction of Duties - - - - 26
Mid Kent - - - - - - - 35
Sussex - - - - - - - - 51
Underwood - - - - - - - 55
Worcestershire - - - - - - - 58
Full Crops - - - - - - - - 25
Forced Sales - - - - - - - 23
Unpicked Hops - - - - - - 55
Graduated, or Sliding Scale - - - - - 26
Herefordshire - - - - - - - - 29
Cost of Cultivation - - - - - - 13
Profit or Loss of Hop-growing, 4 - - - 43
Imports - - - - - - - - - 30
American Hops - - - - - - 2
Bavaria - - - - - - - 4
Belgium - - - - - - - 9
Customs Duty - - - - - - - 15
Free Trade - - - - - - - 23
Loans to Growers - - - - - - 31
Malt and Malt Duty - - - - - 33
MARKING HOPS:
1. *English Hops* - - - - - 34
2. *Foreign Hops* - - - - - 34
Mid Kent - - - - - - - - 35
Acreage Duty, 3, 5 - - - - - - 1
Bavaria, 11, 12 - - - - - - 7
Belgium, 7, 8 - - - - - - - 10
Cost of Cultivation - - - - - - 13
Excise Duty - - - - - - - 20
Free Trade - - - - - - - 23
Golding Hop - - - - - - - 26
Management of Hops - - - - - 34
Prices - - - - - - - - 40
Profit or Loss of Hop-growing, 2, 5 - - - 41
Rochester Collection - - - - - - 48
Over Supply - - - - - - - - 38
Payment of Duty - - - - - - - 38
Collection of Duty - - - - - - 13

Payment of Duty—continued. PAGE
Defalcations - 18
Evasion - 20
Loans to Growers - 31
Picking and Drying - 39
Poling - 39
Bavaria, 1 - 4
Belgium, 1 - 9
Cost of Cultivation - 13
Prices - 40
Barley - 3
Bavaria, 6, 7 - 7
Belgium, 7 - 10
Customs Duty, 2. 3 - 15
Excise Duty, 3. 5 - 21
Forced Sales - 23
Free Trade - 23
Full Crops - 25
Over Supply - 38
Qualities of Hops - 45
Produce - 41
Area of Cultivation - 2
PROFIT OR LOSS OF HOP-GROWING:
1. *Sussex and the Weald of Kent* - 42
2. *Mid-Kent and East Kent* - 42
3. *Hampshire* - 42
4. *Worcestershire and Herefordshire* - 43
5. *Generally* - 43
6. *Foreign Hops* - 43
East Kent - 19
Farnham - 23
Forced Sales - 23
Full Crops - 25
Herefordshire - 29
Moderate Crops - 35
Prices - 40
Short Crops - 49
Unpicked Hops - 55
Qualities of Hops - 45
Bavaria, 5 - 6
Belgium, 2. 3. 4 - 9
Bohemia - 11

Qualities of Hops—continued. PAGE
Colegate Hop - 13
Deterioration - 18
Golding Hop - 26
Grape Hop - 26
Jones's Hop - 30
Marking Hops - 34
Prices - 40
Sussex - 51
Acreage Duty, 3. 5 - 1
Battle - 4
Bavaria, 11. 12 - 7
Belgium - 9
Capital of Hop-growers - 12
Colegate Hop - 13
Cost of Cultivation - 13
Customs Duty, 2. 3 - 15
Distress - 18
Excise Duty - 20
Forced Sales - 23
Free Trade - 23
Fuel - 25
Prices - 40
Profit or Loss of Hop-growing, 1. 5 - 42
Qualities of Hops - 45
Rye - 48
Tithes - 53
Weald of Kent - 56
Acreage Duty - 1
Bavaria, 11. 12 - 7
Belgium - 9
Capital of Hop-growers - 12
Colegate Hop - 13
Cost of Cultivation - 13
Distress - 18
Excise Duty - 20
Forced Sales - 23
Free Trade - 23
Prices - 40
Profit or Loss of Hop-growing, 1. 5 - 42
Worcestershire - 58
Prices - 40
Profit or Loss of Hop-growing, 4 - 43

I N D E X.

[*N. B.*—In this Index the Figures following the Names of the Witnesses refer to the Questions in the Evidence, and those following *App. p.* to the Paging of the Appendix.]

A.

ACREAGE DUTY:

1. *Amount equivalent to the present Excise Duty.*
2. *Economy in Collection if an Acreage Duty be adopted.*
3. *Approval of an Acreage Duty, more especially of a 3l. Duty.*
4. *Disapproval of an Equivalent to the present Duty.*
5. *Objections generally to an Acreage Duty; Inequality thereof.*

1. *Amount equivalent to the present Excise Duty:*

It would require a duty of about 6*l.* 10*s.* an acre to bring up the aggregate to the average amount of the Excise duty for the last ten years, *Pressly and Dobson* 218–220; *T. Smith* 1119–1121.

2. *Economy in Collection if an Acreage Duty be adopted:*

Saving of about 3,000*l.* a year in the cost of collection if an acreage duty were imposed, *Pressly and Dobson* 200–205.

3. *Approval of an Acreage Duty, more especially of a 3l. Duty:*

Advocacy of an acreage duty in preference to the present system of levying the duty or to any interference with the Customs duty, *H. Selmes* 1220–1229, 1237–1243. 1254–1258. 1260, *et seq.*——Witness has paid on the average more than 6*l.* 10*s.* an acre in duty, *ib.* 1254–1257. 1302——Witness would prefer a 3*l.* acreage duty to the present system, or to the abolition of the war duty, *Monckton* 2179 *et seq.*; *Neve* 2789, 2790. 2802–2804—— Consideration of objections to seeming inequalities in an acreage system, *Monckton* 2184–2192. 2234–2245.

Belief that an acreage duty would not be any hardship upon the low producing counties of Worcester and Hereford, *Monckton* 2198–2204. 2238–2245. 2271, 2272—— Belief that the high-priced cultivators, though unwilling that any change be made affecting their present monopoly, are, generally, willing to accept an acreage duty of 3*l.*, *ib.* 2204–2209. 2214, 2215. 2227–2232——Strong feeling in the Weald of Sussex in favour of a 3*l.* acreage duty, *ib.* 2211. 2213——Doubt as to the East Kent planters being opposed to an acreage duty, *ib.* 2227–2231——An acreage duty of 3*l.* would willingly be paid in years of blight, *ib.* 2233, 2234.

Under an acreage duty there would be quite as much equality as at present, *Punnett* 2864——Remarks relative to the views expressed by Mr. Selmes in regard to an acreage duty, *Hammond* 3287. 3293–3296.

Witness proposes an acreage duty of 3*l.*, as the best scheme for relieving the hop grower, and for rendering less oppressive the inequalities of the present system, *Hartridge* 3514–3516. 3530–3566. 3632–3670——Much higher duty than 3*l.* per acre paid by witness, and by growers in Kent and Sussex, under the present system, *ib.* 3517–3519. 3542–3565——Much less duty now paid per acre in Worcester and Hereford than in Kent and Sussex adverted to with reference to the proposed acreage duty, *ib.* 3548–3561 Approval by the hop growers and landowners in witness's neighbourhood of a 3*l.* acreage duty, *ib.* 3632, 3633. 3637–3642——A duty of 3*l.* might press more heavily upon the Weald of Sussex than upon Mid-Kent, but it would be much less unequal than the present system, *ib.* 3643–3670.

A 3*l.* acreage duty, in lieu of the Excise duty, would be beneficial to the planters generally, *Thirkell* 5112, 5113. 5122, 5123. 5145–5151. 5254–5263——A duty of 3*l.* would cause the planters in Sussex, &c. to diminish the extent of their hop-grounds, and to cultivate more highly, so as to produce an increased crop per acre, *ib.* 5112. 5254–5256——Witness has been an advocate of an acreage duty as being the scheme, more than any other, upon which there is most unity among the planters, *Nash* 7128, 7129.

Report, 1857—*continued.*

Acreage Duty—continued.

4. *Disapproval of an Equivalent to the present Duty :*

Unwillingness of witness to accept an acreage duty of 6*l.* 10*s.* as being equivalent in the aggregate to the present duty, *Monckton* 2203. 2246-2252. 2268-2270; *Neve* 2791-2794; *Thirkell* 5118-5121. 5257, 5258——Witness would prefer a 6*l.* 10*s.* acreage duty to the present system, but would rather have free trade than a heavy duty, *Hartridge* 3520-3524.

5. *Objections generally to an Acreage Duty; Inequality thereof :*

Consideration of the effect of an acreage duty; it would be very unequal in its operation, *Pressly and Dobson* 227-245; *Hartridge* 3530 *et seq.* 3634-3636. 3643-3676——Soil best fitted for the largest production of hops, such as the Weald of Kent and Sussex, would be benefited by an acreage duty, *Dobson* 232-245——Objection to a similar acreage duty upon the low-rented lands in Sussex, as upon the high-rented lands in Kent, *T. Smith* 1093-1106. 1111; *H. Selmes* 1299-1311——Opposition made by some low-priced cultivators to an acreage duty, *Monckton* 2204. 2206. 2210-2213.

Statement in illustration of the great inequality of an acreage duty if applied to certain parishes in the Rochester collection, *Punnett* 2959, 2960——An acreage duty of 3*l.* would suit witness very well, but it would operate very unequally, *Carter* 3020, 3021——An acreage duty would operate very unequally and unfairly, *J. Selmes* 5078-5081——Strong disapproval of an acreage duty, *Lucas* 3793; *Cutbush* 5394, 5395——Free trade would be better, *Lucas* 3802——Difficulty as regards the drawback upon exported hops if an acreage duty be adopted, *Darby* 5688.

Objections to an acreage duty in the Draft Reports of the Chairman of the Committee and Mr. Knight, *Rep. p.* ix. xiii.

See also *Hodges, Thomas Law* (*The late*).

Ad Valorem Duty. Impracticability of an ad valorem duty, *Dobson* 241; *H. Selmes* 1315-1317; *Hammond* 3324——An ad valorem duty would be the fairest, *H. Selmes* 1315——Unfairness of a tax upon the value, *Monckton* 2149-2153——Similarity between witness's scheme of a graduated duty and an ad valorem duty, *Hammond* 3325-3328.

Aischgrund Hops. See *Bavaria.*

Alost Hops. See *Belgium*, 3.

Alton District (*Hampshire*). See *Farnham.*

American Hops. Witness does not apprehend competition on the part of American hops, if there were free trade; they are very inferior, *T. Smith* 1024, 1025. 1039; *Waterman* 6833-6835. 6839-6843——The American hops are very rank, and badly flavoured, *Tooth* 1758. 1760-1763; *H. T. Smith* 5774——Reduced price of Sussex hops in 1854, in consequence of imports from America, *Punnett* 2950——Apprehended successful competition on the part of American growers, if there were no Customs duty, *Darby* 5627. 5651. 5695. 5739——Witness had a few consignments of American hops in 1854, but they were sold at a loss, *Waterman* 6832, 6833. 6836-6838——Particulars as to the prices of the American hops imported in 1854, *Parkes* 7521-7531.

Quantity imported from the United States in each of the years 1846-56, *App. p.* 408.

Area of Cultivation. Effect of the Excise duty to restrict the area of land under cultivation, *Dobson* 261, 262; *Curteis* 3926. 4082, 4083——Statement as to the tendency of late years to a decrease of the hop cultivation of Kent and Essex, *Reeve* 412, 413. 423. 519-528; *Tooth* 1898, 1899. 1920-1922. 1925; *Curteis* 4117, 4118——Doubt as to hop-growing being much, if at all, restricted by the Excise duty, *Carter* 3052, 3053. 3057; *Taylor* 4723*. 4816, 4817——Effect of the duty to render growers more cautious and to regulate the supply without unduly restricting it, *Lucas* 3737-3740; *Bannerman* 4296. 4300-4308; *Cutbush* 5317-5324. 5367; *Harryman* 6545-6552.

Facility for extended cultivation in Kent if the hop land in Sussex were grubbed, *Lucas* 3746, 3747——Injury to the population if there were any reductions or fluctuations in the extent under cultivation, *ib.* 3795-3801——Increase or decrease in the acreage generally accordingly as prices have been remunerative or otherwise, *Lucas* 3809; *Thirkell* 5288-5295——Effect of the duty to prevent the cultivation of poor land, *Curteis* 4082——Probable extension, though only temporarily, of hop-growing, if the Excise duty were removed, *Bannerman* 4293-4999.

See also *Free Trade. Hampshire. Herefordshire. Over Supply. Produce. Sussex. Worcestershire.*

B.

Bagging. Deduction of ten per cent. from the Excise duty as allowance for bagging, the deduction being about eight per cent. on hops in pockets, *Dobson* 159-166. 171. 317, 318.

Bannerman, Henry. (Analysis of his Evidence.)—Hop grower at Hunton, in Mid-Kent, bordering upon the Weald of Kent, 4119-4125——Grows chiefly the best hops; that is, the Canterbury or Golding hops, 4126. 4130-4133——Cultivates over 700 acres of land, of

Report, 1857—*continued.*

Bannerman, Henry. (Analysis of his Evidence)—*continued.*

of which about 200 acres are hop land, 4127-4129——The cost of cultivation per acre up to the time of picking is from 26 *l.* to 27 *l.*, 4134, 4135. 4251. 4259-4275——The picking, drying, and duty come to about 2 *l.* a cwt., but the cost of picking varies very much, 4136. 4186-4192.

Profitable character, on the whole, of witness's hop-growing business, 4137. 4141, 4142—— Belief that hop-growing throughout the kingdom is in the aggregate profitable over an average of years; great improbability of the continued investment of so large a capital on hop grounds if they were otherwise than profitable, 4138-4143. 4249-4258. 4284-4290. 4321——Local advantages conferred by hop-growing on account of the increased employment thereby, 4144-4149.

Approval of the present Excise duty upon hops, inasmuch as it falls upon the consumer of one of the luxuries of life, 4150. 4197-4220——Evil of the long credit as regards the payment of the duty; tendency thereby to increased cultivation without proper capital, 4150. 4193-4196——Distress among hop planters when the excessive supply forces the price below its natural price; pressure of the duty at such times unless there be capital to fall back upon, 4150-4154. 4241-4247——Rate of wages in witness's district, 4155-4157.

Witness cultivates about as many Golding hops as he did when he commenced growing about nine years ago; he grows more Jones's and fewer Grapes, 4158-4167—— Practice of witness to sell all his hops together at an average price, and not always to separate the different qualities in packing; amendment contemplated on the latter point, 4168-4185. 4276, 4277.

Although witness approves of the principle of free trade, he considers that the malt duty, which limits the consumption of hops, and is a just tax, renders the duty upon hops a wise and expedient measure, 4197-4228——The malt duty is paid by the consumer, 4202, 4203——The hop duty also is finally paid by the consumer, and does not, on an average of years, at all affect the profits of the planter, 4204-4206. 4229-4239. 4281-4288. 4319, 4320. 4334——Views of Adam Smith adverted to in support of the conclusion that the hop duty is paid by the consumer, and that beer is a luxury, not a necessary, of life, 4214-4219. 4231-4239.

Distinction between barley and hops, in the latter not being an article of exchangeable value, 4228——Benefit to the brewers rather than the consumers if the duty were abolished, 4228-4240——Large capital required in entering upon a hop plantation, 4248, 4249——High value of some of the hop land about Hunton, 4274——Larger quantity of the Jones's and Grape hops than of the Golding hops grown per acre, 4278-4280. 4291, 4292.

Probable extension, though only temporarily, of hop-growing, if the Excise duty were removed, 4293-4299——Effect of the duty to render growers more cautious, and to regulate the supply without unduly restricting it, 4296. 4300-4308——Excellent quality of the Bavarian hops, 4309——Tendency of free trade to lower the price in remunerative years, 4310-4312——Absence generally of complaint in Mid-Kent in regard to the payment of the duty, 4313-4319. 4321——Approval of the practice of marking, as being satisfactory to both buyer and seller, 4322-4332.

Witness contends that, the duty being paid by the consumer, the growers of Sussex and the Weald of Kent have no ground of complaint, 4334——Worse position of the planters in Sussex, &c. in the event of free trade, *ib.*——Witness, as a Mid-Kent grower, makes no complaint against the duty, 4335.

Barley. Produce and price respectively of barley and hops in the last few years; high price of the former attributed entirely to the short supply, *Punnett* 2470-2499—— Distinction between barley and hops, in the latter not being an article of exchangeable value, *Bannerman* 4228——Witness contends that the price of barley is not affected by the duty on hops or the price of hops, *Darby* 5606-5625. 5669-5684——Doubt whether the growers of barley regard the duty upon hops to be an additional grievance to the duty upon malt, *ib.* 5656-5660——Probability of there being nearly two millions of acres under cultivation in barley, *ib.* 5661-5668——Comparatively small acreage of hop grounds adverted to, with reference to the large acreage of barley, and to the effect of the price of hops upon the price of barley, *Bass* 7168-7180.——*See* also *Malt and Hop Duty.*

Bass, Michael Thomas, Member of the Committee. (Analysis of his Evidence.)—Argument that the principle of free trade is more expedient in the case of hops than of almost any other article, 7168—— Statement that the price of barley and the duty on malt are materially and prejudicially affected by the occasionally high price of hops, 7168, 7180—— Impropriety of excluding the consumer from the advantage of the use of foreign hops, 7168——Circumstance of the English hops having stood sixth in point of quality at the Exposition of Agriculture in Paris in 1855; doubt however whether England was fairly represented, 7168. 7195-7200.

Prejudice to the planters in East and Mid-Kent in the event of free trade; they can afford some depreciation in price, 7168——Doubt whether the Sussex and Weald of

Report, 1857—*continued.*

Bass, Michael Thomas. (Analysis of his Evidence)—*continued.*

Kent growers would be at all injured by free trade, 7168——Belief that the apprehension in regard to the effect of free trade, as likely to throw lands out of cultivation and people out of employment, is quite unfounded, 7168. 7180——Comparatively small acreage of hop-grounds adverted to with reference to the large acreage of barley, 7168-7180.

Large consumption of hops by witness's firm, 7181——Difficulty in procuring Bavarian hops in the latter end of 1856; prices recently paid for these hops, *ib.*——Use by witness's firm of the best Kentish and Worcestershire hops almost exclusively, 7182-7184——Quantity of hops used in different kinds of beer, 7185-7187——Large and increasing export of beer by witness and other brewers, upon which, as regards the hops used therein, the drawback is not allowed, 7188-7195——Use chiefly of the Farnham hops in the country where grown, 7200——Witness has found the East Kent hops very superior to the Farnham hops, 7201——Mixed use by witness of English and Bavarian hops; but for the higher price, the latter only would be used, 7202, 7203.

[Second Examination.] Remarks relative to a certain return of the prices of hops in the last ten years; reliance to be placed upon it, 7560——Very large net produce to the grower in 1853 and 1854, as compared with the net produce in full crop years. *ib.*——Mr. Wigan's statement of the average prices for the last ten years is 25 *l.* 15 *s.* 4 *d.* per acre net, which is much less than what has been stated as the average cost of cultivation, *ib.*——Very high prices paid by witness for English hops at different periods in 1853, 1854, and 1855; 7561——Average prices paid in each of the years 1847-1856; 7561-7563.

Practice of witness not to keep any stock of hops when prices are low, 7564——During the present year he has bought between 3,000 and 4,000 Bavarians, 7565——In 1854-55 he used hardly any Belgian hops, 7566——Quality of the Poperinghe hops as compared with different classes of English hops, 7566-7573——Deterioration of the English hop in consequence of the too rapid drying, 7574, 7575. 7588——Doubt as to the growers having been able to make much profit out of the hops sold to witness in 1856; 7576, 7577.

Witness prefers the best Bohemians to the best Bavarians, 7578. 7585-7587——The best Bavarian hop is better in all respects than the best English hop, 7579-7582——Causes of the fine quality of the Bavarian hop, 7583, 7584——In the long run the consumers would have the full benefit of the abolition of the duty, 7589, 7590——Witness has lost by his business on the last three years, 7590, 7591. 7594——There is not much trouble in getting the drawback on exported beer, 7592——The full malt duty paid is not given in the drawback, 7593.

Practice of witness's house to mix English and foreign hops; they would rather use the latter only, 7595——One of the largest brewers in the kingdom has recently told witness that he would never brew foreign hops, 7596, 7597——Use of certain substitutes for hops adverted to; propriety of continued restriction hereon if the duty be removed, 7598-7607.

Bass, Mr. Exception taken to the interference of Mr. Bass and some others in 1854, which led to the reduction of the Customs duty, *Cutbush* 5379-5393.

Battle (*Sussex.*) Rent and quality of the hop-land in the Battle district, *Webster* 570-583 898-900——The district about Battle is very subject to blight, *ib.* 657, 658——Distress in the Battle union in years of full crops, *T. Smith* 925-928.

BAVARIA:

1. *Generally as to the Cost and Character of the Hop Cultivation.*
2. *Area under Cultivation: Facility for extending it.*
3. *Produce per Acre; less Uncertainty than in England.*
4. *Processes of Picking, Drying, and Packing.*
5. *Quality of the Hops; their Superiority to English Hops.*
6. *High Prices of Bavarian Hops in England.*
7. *Prices in Bavaria, and additional Cost if sold in England.*
8. *Quantity Exported, and Quantity consumed at Home.*
9. *Employment of English Capital in the Country.*
10. *Imports from England.*
11. *Apprehended injurious Importation of Bavarian Hops, if Duty free.*
12. *Dissent from the foregoing Conclusion.*
13. *Bavarian Beer.*

1. *Generally as to the Cost and Character of the Hop Cultivation:*

Information relative to the character and cost of the cultivation in Bavaria, *Curteis* 3878 *et seq.*; *Richardson* 6196 *et seq.* 6270-6276——The cost of production is very low, *J. P. Smith* 4454, 4455. 4568——There is no duty or charge of any kind upon hop-growing or upon exports, *Richardson* 6193-6195. 6262, 6263——System of poling adverted to; its expense, *Richardson* 6198-6206; *Whitling* 6622. 6666. 6741, 6742. 6825, 6826——The holdings

BAVARIA—continued.

1. *Generally as to the Cost and Character of the Hop Cultivation*—continued.

holdings are in the hands of small proprietors, which is a check to improvement, *Whitling* 6612. 6625, 6626. 6702——Nature of the manure used, *ib.* 6624——Calculation of from 12 *l.* to 15 *l.* as the cost of cultivation per acre up to the time of picking, *ib.* 6628-6652.

Varying price of hop land, *Whitling* 6639, 6640. 6734-6741; *Lucas* 7226*——A price of 3 *l.* 10 *s.* per cwt. is calculated to pay if there are five cwt. to the acre; lower calculation where the land is inferior, *Whitling* 6648-6652——Witness has seen poles forty-two feet long, *ib.* 6666——Explanation as to the use of the hop bine as a manure, *ib.* 6680-6686——Character of the soil in different parts of Bavaria, Bohemia, &c., *ib.* 6694, 6695——The cultivation is mainly by manual labour, *ib.* 6703.

Witness has known land to fetch 340 *l.* an acre, including poles and plants, *Whitling* 6734-6741——The shorter poles cost 15 *l.*, and the longer 25 *l.* per 1,000, *ib.* 6741, 6742——Two-thirds of the land produce hops fit for the English market, *ib.* 6748——Amount of wages when hired labour is employed, which is not always the case, *ib.* 6822-6824——Number of poles to an acre, *Whitling* 6825; *Waterman* 6878-6881.

Superior soil, climate, and cultivation to which the fine quality of the Bavarian hop is attributable, *Waterman* 6847, 6848; *Bass* 7583——Particulars as to the mode of cultivation, system of poling, &c., *Waterman* 6848-6851. 6874-6884. 6906, 6907——There is only one pole to a hill, and only two bines to a pole, *ib.* 6848. 6874-6877——The poles are sometimes much over forty feet in length, *ib.* 6849, 6850——Much less manure used than in England; its character, *ib.* 6883, 6884——Absence of reliable official returns relative to hops, *ib.* 6885. 6888-6890——Evidence as to the value of hop land, *ib.* 6918-6933——Doubt as to any land being worth 300 *l.* or 400 *l.* an acre, *ib.* 6922-6930——Sales are not often forced, *ib.* 6936.

Statement of the average cost of production respectively in Spalt city and Spalt country, in which districts of Bavaria the finest hops are grown, *Lucas* 7204. 7209-7213——Total cost of 21 *l.* 11 *s.* 8 *d.* per acre at Spalt city, and of 7 *l.* 12 *s.* 7 *d.* per acre in Spalt country, before picking, *ib.* 7205. 7210.

Witness has recently travelled through the country, and has obtained from growers and others the information which he now lays before the Committee; he took various opinions, and gives the average of those opinions, *Lucas* 7207, 7208. 7211-7213. 7247-7249. 7256-7258——There are no Government statistics, *ib.* 7209.

Statement of the cost of cultivation in Hersbruck city and Hersbruck district, where the produce per acre is large, and the hops of an inferior kind, *Lucas* 7213-7216——Total cost before picking of 17 *l.* 11 *s.* 1 *d.* at Hersbruck city, and of 11 *l.* 5 *s.* in Hersbruck country, *ib.* 7214-7216.

Particulars of the cost of cultivation in the Aischgrund district, *Lucas* 7217, 7218. 7222——Total cost of 17 *l.* 2 *s.* 2 *d.* per acre at Aischgrund, *ib.* 7218.

Particulars of the cost in the Holetau district, near the Danube, *Lucas* 7219. 7223——Explanation that witness has not visited Holetau since 1852, but that the information now supplied has been recently procured from persons living there, and is quite reliable, *ib.* 7220-7222——Total cost before picking of 8 *l.* 1 *s.* 2 *d.* per acre in Holetau, *ib.* 7223——One-third of the whole produce grown in the district at a cost of about 1 *l.* 10 *s.* per cwt., *ib.* 7226*.

Explanation of the system of cultivation in Spalt and other districts, *Lucas* 7226*——Evidence given to witness by Mr. Charles Zeltner, a brewer and hop-grower at Hersbruck, *ib.* 7226*, 7227——Evidence given by Mr. Frederic Loos, a grower at Hersbruck, *ib.* 7227-7229——Information given to witness by members of the firm of M. Uhlemann, of Forth, near Nuremburg; respectability of this house, *ib.* 7229-7233——Information given by Dr. Morgenstein, formerly a member of the Chamber of Deputies, relative to the malt duty, &c., *ib.* 7233——Information supplied by M Rosenthall relative to the Holetau district, *ib.* 7240.

The brewers did not seem to know much about the cost of production, *Lucas* 7242. 7246——Sundry memoranda, as made by witness, relative to the Spalt country; its mode of cultivation; system of poling, &c. *ib.* 7249-7255——Cost of poles, *ib.* 7249. 7255——Very tall poles used, *ib.* 7250, 7251. 7255——Memoranda relative to the Hersbruck district, *ib.* 7255——Memoranda relative to the Aischgrund district, *ib.*

Much less variation in the cost of production in Bavaria than in England, *Lucas* 7258-7262——Obstacle to any large increase of hop-growing in the Hersbruck district, *ib.* 7278-7281——A considerable portion of the land in Bavaria is in the hands of small proprietors; they are persons of considerable intelligence; they frequently employ hired labour, *ib.* 7308-7312——Frequent instances of large holdings, *ib.* 7312, 7313. 7327.

The use of such high poles, and of only one pole to a hill, is a great advantage to the quality, *Bass* 7583.

Report, 1857—*continued.*

BAVARIA—continued.

2. *Area under Cultivation; Facility for extending it:*

Witness has heard that there are 45,000 acres under plant, and that the quantity has increased twenty-five per cent. since 1854, *J. P. Smith* 4482, 4483——Estimate of about 9,000 English acres as the extent of land under cultivation, *Richardson* 6213-6218——The cultivation has increased of late years, *ib.* 6283——There are about 28,000 acres under cultivation, *Whitling* 6627.

Ample facility for extended cultivation, *Richardson* 6281, 6282; *Whitling* 6660-6663. 6696-6698; *Lucas* 7226*. 7255. 7306-7319——Considerable increase in the produce of Bavaria, on account of the increased home consumption, and the increased exportation, *Whitling* 6699-6701. 6708-6711——There are about 26,400 English acres of hop-land in Bavaria, *Lucas* 7206. 7226*——Steady increase of hop plantations all over the country, *ib.* 7281. 7297. 7299.

3. *Produce per Acre; less Uncertainty than in England:*

Estimate of from seven to eight cwt. per acre as the average produce, *Richardson* 6196-6212——Less liability to blight in Bavaria than in England, *Richardson* 6234; *Whitling* 6615-6620——The crop is very capricious, *Richardson* 6235, 6236——Less uncertainty of the crop in Bavaria than in this country; average produce of about five cwt. per acre, *Whitling* 6605-6611. 6630, 6631. 6657-6659——The average produce is from four to five cwt. per acre, *ib.* 6704.

Computation of from two to three cwt. per acre as the average produce in Bavaria and Bohemia, *Waterman* 6886-6888——In 1856 the Bavarian crop was not large, but this year it is expected to be unusually abundant, *ib.* 6957——The annual produce averages 167,000 cwt. to 26,400 acres, *Lucas* 7226*. 7256——Fewer bad crop years in Bavaria than in this country, *ib.* 7407.

4. *Process of Picking, Drying, and Packing:*

The hops are not properly dried or cured, *Tooth* 1555. 1771——Way in which the hops are dried and packed, *Richardson* 6254-6358——Difference between the English and the Bavarian mode of drying, *Whitling* 6664, 6665——Very defective way in which the Bavarian hops are packed, *ib.* 6731. 6751.

Practice of the grower to sell to the factors and merchants before the hops are cured, *Whitling* 6732; *Waterman* 6891-6895——System of drying; its defects, *Whitling* 6733——Practice of drying or rather of sulphuring the hops in order to render them fit for exportation to England, &c., *Waterman* 6893, 6894. 6897-6903——Natural system of drying practised by the grower, which is considered sufficient if the hops are for immediate use, *Waterman* 6895-6897; *Lucas* 7252. 7255——Way in which the picking is carried out, *Lucas* 7249. 7252. 7255.

5. *Quality of the Hops; their Superiority to English Hops:*

Very superior quality of the Bavarian hops; they are better than the best English hops, *Tooth* 1555, 1556. 1769-1774; *Kenward* 3108-3113; *Bannerman* 4309; *H. T. Smith* 5768. 5797; *Evans* 5837-5839. 5853, 5854. 5875. 5881, 5882. 5940-5942; *Whitling* 6793. 6800; *Waterman* 6845, 6846. 6856-6873. 6992; *Nash* 7148. 7157; *Lucas* 7403; *Bass* 7579-7582——Less deterioration in Bavarian yearlings than in English yearlings, *Punnett* 2955-2958; *Evans* 5868-5875; *Richardson* 6259-6261.

The Bavarian hops imported in 1854 were very good, fully equal to the best English hops, *Hammond* 3209-3211. 3372-3375——Quality of the best Bavarian and Bohemian hops, as compared with the best English hops; if the former are superior, it is probably owing to their not being forced so much as the latter, *Richardson* 6253. 6264-6269——The best Bavarian hops are grown at Spalt, near Nuremburg, *ib.* 6279, 6280——Better quality and cultivation of the soil in Bavaria than in England: hence their hops are better than ours, *Whitling* 6608. 6613-6626. 6653-6657; *Bass* 7583, 7584——There are only two distinct classes of hops grown, the early hop and the late hop, the latter, which is a heavy hop, being the best in quality, *Whitling* 6722-6730.

Particulars as shown by chemical analysis some years ago of the qualities of Bavarian and English hops; extent to which, and respects in which the former surpassed the latter, *Whitling* 6801-6821——The qualities varied from 12 to 17 per cent., *ib.* 6802——The Saaz hops stood the highest, then Spalt, Hersbruck, and East Kent, *ib.* 6803——Reference to the Spalt hops as being overrated, *Waterman* 6931.

Mixture by witness of English and Bavarian hops; but for the higher price the latter only would be used, *Bass* 7202, 7203——Different qualities of the Hersbruck hops, *Parkes* 7484——The hops of the Holetau district are fully equal to the average of the Mid and East Kent hops, *ib.* 7485. 7488——The Holetau hops are superior to the Hersbruck hops; reason why they have not superseded them, *ib.* 7486-7494——Character of the inferior hops of Bavaria; they are about equal to the Alost hops, *ib.* 7505-7507——During the present year witness has bought between 3,000 and 4,000 Bavarians, on account of their good quality, *Bass* 7565.

6. *High*

Report, 1857—*continued.*

BAVARIA—continued.

6. *High Prices of Bavarian Hops in England:*

Bavarian hops are realising 7 *l.* a cwt. at the present time, *T. Smith* 1041——In 1855 witness could have sold Bavarian hops at an advance of twenty per cent. on the price of the best English hops; he has sold them at an advance of twenty-two per cent., but does not consider them worth the increased price, *Richardson* 6179-6189——Witness has sold the finer Bavarian hops at 2 *l.* and 3 *l.* per cwt. above the price of East Kents, *Whitling* 6800——Particulars as to the higher prices recently obtained by witness for Bavarian hops than for East Kent; the former have been readily bought at 7 *l.* 10 *s.* per cwt., whilst the latter have not fetched more than 5 *l.*, *Waterman* 6856-6873. 6911-6917. 6940-6956——Difficulty in procuring Bavarian hops in the latter end of 1856; prices recently paid for these hops, *Bass* 7181.

7. *Prices in Bavaria, and additional Cost if sold in England:*

Statement relative to the average yearly price of the greater quantity of Bavarian hops for each of the years 1840–56, exclusive of the drying, picking, &c., *Richardson* 6168–6178. 6190——The average price for the seventeen years 1840–56 was 102 *s.* 8 *d.* per cwt., and for the eight years 1847–54, 109 *s.* 7 *d.* per cwt., *ib.* 6190——To the grower's price in Bavaria must be added about 15 per cent. as additional expense before sale in England, *ib.* 6191, 6192——The freight from Bavaria varies from about 5 *s.* 6 *d.* to a much higher sum, *ib.* 6192——Remunerative prices to the Bavarian grower if he got 55 *s.* per cwt., *ib.* 6223–6225. 6230–6232. 6357.

Statement of the prices of hops in Bavaria, as sold by the grower before drying, for the last eight years; personal experience on which witness puts forth this statement, *Whitling* 6573–6591——The average price for the eight years was aqout 6 *l.* 5 *s.*, *ib.* 6590——To the price paid to the grower must be added from 15 *s.* 6 *d.* to 18 *s.* 6 *d.* as the expense of drying, packing, and freight before sale in this country, *ib.* 6592–6598.

Prices recently given by witness through his broker in Bavaria; additional charges and duty making the total cost about 7 *l.* per cwt. when sold in this country, *Waterman* 6940–6956.

Particulars of the expense upon a cwt. English of Bavarian hops, from the time of sale to the merchant to its delivery to a bonded warehouse in London; total, 1 *l.* 4 *s.* 7 *d.*, *Lucas* 7224–7226. 7331, 7332——Cost and mode of transit from Bavaria to London, *ib.* 7226. 7235, 7236——According to M. Uhleman, the average price of Bavarian hops for the last twenty years has been 5 *l.* 19 *s.*, *ib.* 7232.

8. *Quantity exported, and Quantity consumed at Home:*

Increasing importation of Bavarian hops into England, *Evans* 5943–5946——Particulars as to the exports from Bavaria; good hops retained in the country by the brewers, *Richardson* 6237–6252——Quantity of Bavarian hops imported by witness of late years, *Whitling* 6598–6600——Proportion of produce consumed in the country, and proportion exported to different countries, *ib.* 6743–6747——About 45,000 cwt., out of 167,000 cwt., are consumed in the country, *Lucas* 7226*. 7255.

Quantity of hops imported from each of the Hanse Towns in each of the years 1846–56, *App. p.* 408.

9. *Employment of English Capital in the Country:*

English capital is now employed in Bavaria in the growth of hops, *Darby* 5627–5694; *Waterman* 7068–7070——How far any difficulty to English hop merchants establishing themselves in Bavaria, *Whitling* 6755–6764; *Waterman* 7068–7070——Witness has an an oast-house in Bavaria, where the hops are cured for the English markets, *Waterman* 6908–6910.

10. *Imports from England:*

Some English hops were sent to Bavaria in 1847, but the police forbade their use, as being sulphured, *Whitling* 6782-6784——Obstacle to the use of English hops in Bavaria, *ib.* 6794-6796——Probable cause of a certain exportation to the Hanse Towns, *St. John* 7469——There is an import duty in Bavaria upon English hops, *Richardson* 6193; *Whitling* 6753. 6795; *Waterman* 7061, 7062.

11. *Apprehended injurious Importation of Bavarian Hops, if Duty free:*

Evidence in support of the conclusion that Bavarian hops would, in the event of free trade, successfully compete with the best English hops, *Tooth* 1738, 1739. 1767–1779. 1788–1794; *Monckton* 2072. 2075–2077. 2090. 2095–2098. 2101 *et seq.* 2141–2147; *Kenward* 3108 *et seq.*; *J. P. Smith* 4454–4457. 4481–4483. 4558–4566; *Nichols* 4927–4938. 4945–4951; *Darby* 5627. 5651. 5694–5705.

From Bavaria and Bohemia from 30,000 to 40,000 cwt. may readily be sent to England, *Lucas* 7226*. 7255——Anticipated great increase in the growth of Holetau hops; they are equal to our best hops, and can be delivered in London at a good profit, with the duty paid,

Report, 1857—*continued.*

BAVARIA—continued.

11. *Apprehended injurious Importation of Bavarian Hops, if Duty free*—continued.

paid, for 6 *l.* per cwt., *Lucas* 7226*——In twenty years the production in Holetau has advanced from 5,000 to 55,000 cwt., *ib.*

Further evidence relative to the Holetau district, and its capabilities for successful competition with this country; explanation as to this district not having superseded the growth of hops in Hersbruck and other districts, where the hops are much dearer and no better, if so good, in quality, *Lucas* 7234 *et seq.* 7264-7270. 7274 *et seq.*——Unduly high profits of the growers and merchants in Bavaria, *ib.* 7240. 7242. 7321-7328——Belief that, in the event of free trade, the Bavarian hops must inevitably supplant our best hops, and drive them into the second place, or out of cultivation altogether, *ib.* 7271. 7287, 7288. 7403, 7404.

The Spalt hops are in much repute in Bavaria, and do not come to England in any quantity; free trade, however, would probably cause a large increase of their use, *Lucas* 7272, 7273. 7278. 7283. 7307——Prices would decrease in this country, but would not decrease in Bavaria, in the event of free trade, *ib.* 7317-7320——Bavarian hops might, if there were an increased demand, be largely supplied at less profits and lower prices than at present, *ib.* 7318-7326——Bavarian hops will, in the event of free trade, supersede the best English hops, *Parkes* 7511.

Grounds, adduced in draft report of Mr. Knight, for apprehending injurious competition on the part of Bavaria in the event of free trade, *Rep. p.* xi, xii.

12. *Dissent from the foregoing Conclusion:*

Grounds for concluding that the Bavarian hops, though equal to the best English hops, could not successfully compete with them in the home market, in the event of free trade, *Curteis* 3878-3891. 3927-3946. 3958-3966——Complaint as regards the excessive Customs duty in this country, *Whitling* 6752——Free trade would bring only the best Bavarian hops into competition with the best English hops, and that only to a limited extent, *ib.* 6797-6800.

Inability of Bavaria to supply all the hops required in this country; improbability of their being allowed by the English planter to do so, *Waterman* 7039-7055——Free trade would not lead to English capital being invested in Bavaria, *ib.* 7071-7073——Impression that the abolition of the duty would be no advantage or encouragement to the Bavarian, *ib.* 7074-7080.

13. *Bavarian Beer:*

Different qualities of Bavarian beer; the ordinary beer is very highly hopped, and is not capable of transit by sea, *Whitling* 6712-6721. 6765-6792——Improbability of the ordinary Bavarian beer successfully competing with English beer, *ib.* 6765-6780——Beer is the general beverage in Bavaria, and is very cheap; government restrictions thereon, *Waterman* 7053-7060.

See also *Customs Duty*, 2, 3. *Free Trade.* *Marking Hops*, 2.

Beer. Conclusion that the duty on hops, as well as upon malt, falls upon the consumer, *Dobson and Pressly* 35-41. 189, 190. 206-214. 250-260. 7413——Causes of the abolition in 1830 of the beer duty; partial character of the tax, *Dobson* 42-48——Much more heavy tax on spirits than on beer, *Pressly and Dobson* 56-62——Duty of about 5 *s.* 6 *d.* on the malt, and 4 *d.* on the hops required in a barrel of ordinary London porter; calculation hereon that about ten pounds of hops are used per barrel, *ib.* 57-60, 108-117 182-188. 250-254——Increased export of beer since 1849, *Dobson* 154.

Belief that the reduction or abolition of the Customs and Excise duties would not be any advantage to the consumer of beer as regards the price; it might be some advantage as regards the quality, *Reeve* 452-454. 559, 560; *Webster* 786-788. 798-801; *H. Selmes* 1262, 1263; *Tooth* 1813-1816; *Neve* 2778-2781; *Hammond* 3312, 3313; *Nichols* 4926——Almost imperceptible benefit to the consumer if the duty were abolished, *Tooth* 1813-1816: *J. P. Smith* 4567-4582; *Taylor* 4654, 4655. 4720-4723——Complaints of the quality of beer when hops have been dear; doubt hereon as to the use of substitutes, *Tooth* 1817, 1818. 1826-1830——Grounds for the conclusion that a reduction in the price of hops is an advantage to the consumer as regards either the price or quality of beer, *Punnett* 2408-2411. 2513-2525. 2906-2909.

Conclusion that the consumer pays the duty in the quality of the beer; very slight effect of the duty hereon as regards individuals, *Lucas* 3756-3763. 3803-3808——Witness calculates that a man drinking a quart of beer a day pays about 11 *d.* a year in Excise duty on hops, *ib.* 3760-3762——Extent to which the consumer might be benefited in the event of free trade, *Curteis* 3994-3998.

Approval of the present Excise duty upon hops, inasmuch as it falls upon the consumer of one of the luxuries of life, *Bannerman* 4150. 4197-4220——The duty is finally paid by the consumer, and does not, on an average of years, at all affect the profits of the planter, *Bannerman* 4204-4206. 4229-4239. 4281-4288. 4319, 4320. 4334; *J. P. Smith* 4496-4500;

Report, 1857—*continued.*

Beer—continued.

4500; *Mannington* 5005-5009; *Cutbush* 5368-5370; *Leney* 5446——If the duty were abolished, the person who drinks about 365 quarts would benefit to the extent of about 1 *s.*, *Bannerman* 4233-4240——Witness contends that, the duty being paid by the consumer, the growers of Sussex and the Weald of Kent have no ground of complaint, *ib.* 4334.

In consequence of the duty, the consumer pays about 1 *s.* on every 100 gallons of beer, *J. P. Smith* 4501-4503——Witness has never found the price of beer fall when hops have been cheap; nor was it generally raised in 1854 when hops were unusually dear, *Darby* 5612, 5613——Doubt as to the proportion of the Excise duty which is paid by the consumer, *ib.* 5721-5725——Impression as to the injurious effect of the foreign hops of 1854 upon the quality of beer in that year, *H. T. Smith* 5753. 5789-5796——Coarse description of hops used in porter, *Evans* 5959-5961. 5981——The duty now is almost inappreciable as regards the consumer, and its removal would not benefit him, except slightly on the score of quality, *Harryman* 6482, 6483. 6494, 6495. 6523-6527——If in the last ten years the growers have paid 4,000,000 *l.* in duty, they have got it back in the price, *ib.* 6529, 9530.

Gain to the consumer in quality when hops are plentiful, *Waterman* 7049-7052——Impropriety of excluding the consumer from the advantage of the use of foreign hop, *Bass* 7168——Quantity of hops used in different kinds of beer, *ib.* 7185-7187——Large and increasing export of beer by witness and other brewers, upon which, as regards the hops used therein, the drawback is not allowed, *ib.* 7188-7195——Any reduction in price consequent upon free trade would benefit the consumer, but to so slight an extent as not to justify the concomitant evil of the ruin of many hop growers, *Lucas* 7289, 7290. 7406——The drawback allowed upon beer exported is considered equivalent to the duty upon the malt and hops used in it, *St. John* 7459, 7460——In the long run the consumers would have the full benefit of the abolition of the duty, *Bass* 7589, 7590——There is not much trouble in getting the drawback on exported beer, *ib* 7592.

' Declared value of beer and ale exported in each of the years 1837-56; *App. p.* 408.

See also *Brewers. Consumption. Malt, and Malt Duty.*

BELGIUM:

1. *Character and Cost of the Hop Cultivation generally.*
2. *Quality of the Hops as compared with English Hops.*
3. *Alost Hops.*
4. *Poperinghe Hops.*
5. *Acreage and Produce; Means of Extension.*
6. *Exports to England.*
7. *Price in Belgium, and probable Price in England, if the Duty be abolished.*
8. *Generally as to the Effect of Free Trade upon Competition.*

1. *Character and Cost of the Hop Cultivation generally:*

Much less cost of production in Belgium than in Kent or Sussex, *Thirkell* 5186-5207——Cheapness of poling in Belgium, *ib.* 5190-5195——There is no duty on export, *Richardson* 5996——The hops are dried and cured by the merchants, *ib.* 6001. 6004. 6005——Unless the hops are picked wet, they do not deteriorate by being kept for some time before they are oasted, *ib.* 6005, 6006——Way in which they are kept after picking and before sale to the merchants, *ib.* 6006. 6079, 6165, 6166.

Evidence as to the expense of cultivation in Belgium; difficulty of accurate calculation hereon, *Richardson* 6030-6032. 6073 *et seq.*——Particulars as to the poling; greater expense than in this country, *ib.* 6056-6060. 6089-6093——Character of the cultivation, *ib.* 6062 *et seq.*——Limited extent of the holdings, which are chiefly in the hands of small proprietors, *ib.* 6064. 6094. 6131-6139——The rent of land is about forty francs an acre, *ib.* 6094-6096——There is no tax or charge except a tax of ten per cent. on the rent, *ib.* 6097-6103——The cost of production and the price are about the same as in England, less the Excise duty, *ib.* 6365-6367.

Practice of the Belgian merchants to sulphur the hops, and otherwise to prepare them chemically before export to this country, *Lucas* 7342. 7360——Practice of kiln-drying adopted by the growers; there are oast houses for the purpose throughout the country, *ib.* 7342-7352——There are no tithes or rates in Belgium, *ib.* 7378.

2. *Quality of the Hops as compared with English Hops:*

Comparatively inferior quality of Belgian hops, *T. Smith* 1026-1029; *Tooth* 1757-1761. 1780-1782; *Hammond* 3209. 3229, 3230; *H. T. Smith* 5775-5777. 5797. 5804; *Evans* 5876, 5877; *Waterman* 7063——Better quality of the Belgian than of the Sussex hops, *J. C. Smith* 4472-4476——Opinion that Belgian hops deteriorate less than English hops; system of packing and curing adverted to hereon, *Richardson* 6039-6053——Belgian hops are used in France, where they are preferred to the English hops, *ib.* 5153-5158.

Report, 1857—*continued.*

BELGIUM—continued.

2. *Quality of the Hops as compared with English Hops*—continued.

As a merchant witness has found it almost impossible to sell Belgian hops in lieu of English, *Nash* 7147-7154. 7156, 7157——The ordinary run of English hops are inferior to the finest Belgian, *Bass* 7199——Superior kind of hop grown in the district between Liege and Namur, *Lucas* 7390——The Belgian hops, if properly dried and packed, would be nearly equal to ordinary Mid Kents, *ib.* 7403——In 1854-55 witness uses hardly any Belgian hops, *Bass* 7566.

3. *Alost Hops:*

Statement of the cost of production per acre in the town and country districts of Alost, *Lucas* 7333-7336——At Alost town the cost per acre is 11 *l.*, and per cwt. 1 *l.* 12 *s.* 8 *d.*, and in Alost country 10 *l.* 10 *s.* 6 *d.* per acre, and 1 *l.* 18 *s.* 2 *d.* per cwt., *ib.* 7335, 7336——Expenses per cwt. from the time of sale of Alost hops to the merchant to the delivery into a bonded warehouse in London; total 9 *s.* 1 *d.*, *ib.* 7340.

Sundry particulars relative to the cultivation and cost of production in the Alost district, as supplied to witness on the spot, *Lucas* 7353 *et seq.*——System and cost of poling about Alost. *ib.* 7353. 7362——Statement by M. Jelie, a merchant at Alost, that the cost to the grower was 1 *l.* 6 *s.* 2 *d.* per cwt., *ib.* 7362-7367——Remarks relative to the extremely low cost of production in the Alost district; reason why it is so much less than in the Weald of Kent and Sussex, *ib.* 7369-7389——Witness is satisfied of the accuracy of his information relative to the Alost districts, *ib.* 7392, 7393.

The Belgian hops near Alost are fully equal to the hops of Sussex and the Weald of Kent, but are at present very badly managed, *Parkes* 7498-7503.

4. *Poperinghe Hops:*

Excellent quality of the Poperinghe hop, *Evans* 5840-5842——About one-third of the Belgian hop consists of the Poperhinghe hop, which is of a superior quality, *Richardson* 6010-6012. 6028, 6029.

Statement of the cost in the Poperinghe town and country districts, *Lucas* 7337-7339——Total cost of 24 *l.* 8 *s.* per acre, or 2 *l.* 9 *s.* per cwt. in Poperhinghe town district, and of 18 *l.* per acre, or 1 *l.* 16 *s.* per cwt. in Poperinghe country district, *ib.* 7337. 7339——Sundry particulars, as supplied to witness, relative to Poperinghe district, *ib.* 7368——Belief as to the better quality of the Poperinghe hop than the Alost hop, *ib.* 7402——Quality of the Poperinghe hops as compared with different classes of English hops, *Bass* 7566-7573.

5. *Acreage and Produce; Means of Extension:*

There are no statistics of the produce of hops, *Richardson*, 5987——Estimate that in full-crop years Belgium produces 4,250,000 kilograms, or about 80,000 cwt., *ib.* 5988-5991——Increased growth of late years in consequence of better prices, which are the result mainly of exportation to this country, *ib.* 5992-5995——The crops are less variable than in England; there is less blight, *ib.* 6023. 6027. 6141.

Estimate of about 5,660 English acres under cultivation, *Richardson* 6056-6061——Estimated produce varying from ten to seventeen hundredweight per acre, *ib.* 6060——Nature of the facilities for increased cultivation, *ib.* 6062 *et seq.*——Witness has never known a short crop in Belgium, *ib.* 6151.

Ample facilities for largely increasing the cultivation in Belgium, *Lucas* 7368. 7390——Considerable increase of late in the plantations, *ib.* 7370. 7371——Probability of increased growth in Belgium having reference entirely to the English market, *ib.* 7400-7402——The crops vary much as in England, *ib.* 7407.

6. *Exports to England:*

It is estimated that in the years 1853 and 1854 more than three-fourths of the Belgian hops were sent to this country, *Richardson* 5997.

Quantity of hops imported into this country in each of the years 1846-56, *App. p.* 409.

7. *Price in Belgium and probable Price in England, if the Duty be abolished:*

Doubt as to its being possible to sell Belgian hops so low as 40 *s.* or 45 *s.* a cwt., if the duty were taken off, *Webster* 856-865——Statement as to Belgian hops having been sold in Belgium at 40 *s.* a cwt., and even less, *Monckton* 2071. 2090——Hops have been sold in Belgium for seven years at an average price of from 38 *s.* to 42 *s.*, *Hammond* 3206——The price of hops in Belgium, for fourteen years prior to 1854, was from 30 *s.* to 35 *s.* a cwt., *J. P. Smith* 4459. 4471. 4477-4480——Less cost in bringing hops from Belgium to the Borough, than from Worcester to the Borough, *ib.* 4462-4465.

Particulars relative to the prices of Belgian hops, as obtained in the country by the growers before they are dried, &c.; reference hereon to a table showing the prices in October and March for each of the years 1830-1846, *Richardson* 5998 *et seq.*——The average

Report, 1857—*continued.*

BELGIUM—continued.

7. *Price in Belgium, and probable Price in England, &c.*—continued.

average price for the seventeen years, 1830–1846, is 65*s.* 8*d.* per cwt., and for the eight years 1847–1854, 80*s.* 3*d.* per cwt., *Richardson* 6009——The late variations in the price are attributable to the English demand, *ib.* 6024–6026——About 10*s.* a cwt. must be added to the price in Belgium as additional expense before sale in England, *ib.* 6033–6038——The freight from Belgium is from 2*s.* to 3*s.* per cwt., *ib.* 6036——Hops would probably be remunerative to the grower, if they fetched from 50*s.* to 60*s.* in this country, *ib.* 6362–6365.

Average of 3*l.* 17*s.* given by M. Jelie as the price from 1848 to 1856, *Lucas* 7367. 7368——Conclusion, from witness's inquiries, that Belgian hops may be sold in this country at a profit at 2*l.* 16*s.* per cwt., *ib.* 7394–7398.

8. *Generally as to the Effect of Free Trade upon Competition:*

Opinion that the Belgian hops are not so good as the Sussex hops, and that, in the event of free trade, competition on the part of Belgium is not to be apprehended, *T. Smith* 1026–1038. 1046–1050; *Waterman* 7063——Grounds for apprehension of injurious competition with this country if the Customs duty be abolished, *Monckton* 2071. 2075–2077. 2090–2094. 2101 *et seq.*——Evidence in regard to the danger of competition from foreign hops, especially Belgian hops, if there were no Customs duty; sale of Belgian hops in 1854 adverted to hereon, *Punnett* 2871–2899. 2949–2952——Sale of Belgian hops in 1854–55, at 14*l.* per cwt., whilst Sussex hops fetched 14*l.* 14*s.*; *ib.* 2885–2899.

Witness has no apprehension of competition, on the part of Belgium, with Sussex or the Weald of Kent, in the event of free trade, *Curteis* 3915–3919. 3944. 3945——Grounds for the conclusion that Belgian hops can successfully compete with Sussex hops, in the event of free trade, *J. P. Smith* 4458–4480——Since 1854 there has been hardly any exports from Belgium to this country, *Richardson* 6017–6022. 6108, 6109——Doubt as to the effect of free trade in regard to exports from Belgium to this country; if the prices in this country were as low as they have been for the last two years, Belgian hops could not be imported profitably; but, in the event of high prices and free trade, considerable importation might take place, *ib.* 6086 *et seq.*; 6337. 6364–6368——In the event of free trade the Belgian hops will successfully compete with Sussex and the Weald of Kent, *Parkes* 7509, 7510.

See also *Customs Duty*, 2, 3. *Free Trade.*

Betting. Reference to the immense gambling which goes on every year in regard to the amount of the Excise duty, *Reeve* 513, 514——As regards the practice of betting about the amount of the duty, an earlier payment of the duty would not prevent it, *Webster* 719–721——Consideration of the practice of betting as connected with the duty; incidental advantage of the practice, though in itself an evil, as showing public opinion in regard to the probable amount of the crop, *Tooth* 1838–1881; *Kenward* 3152–3174.

Bohemia. The Bohemian hops are better than the Belgian, and command rather a better price than the bulk of the Bavarian hops, *Richardson* 6289–6291——Cost of transmission respectively from Bohemia and Bavaria to this country, *ib.* 6292–6294——The best Bohemian hops are, in witness's opinion, better than the best East Kent hops, *Whitling* 6749——Route of Bohemian and Bavarian hops in coming to England, *ib.* 6754——Very long poles used in Bohemia, *Waterman* 6851–6853——Importation sometimes of inferior and superior Bohemian hops mixed together, *ib.* 6854, 6855.

The production in Bohemia is about 67,500 cwt., *Lucas* 7226*. 7255——Nature of the information given to witness and Mr. Parkes by M. Moritz Uhleman, of Hamburg, about the Bohemian hops, *ib.* 7233, 7234——Witness prefers the best Bohemians to the best Bavarians, *Bass* 7578. 7585–7587.

Bonding. Considerable expense which would be incurred by the plan of receiving hops into bond and not collecting the duty until they are taken out of bond, *Pressly and Dobson* 6–8——At least 200 additional officers would be required, which would be an expense of 20,000*l.* a year, *Dobson* 7, 8.

Advantage to the foreigner in the system of his not being called upon to pay the duty till he sells his hops, *Punnett* 2900–2904——Great advantage if the bonding system were adopted in England, *ib.* 2902. 2923. 2927——Opinion that the adoption of the bonding system need not be at all so expensive a matter as is estimated by Mr. Dobson, *ib.* 2924–2926. 2945, 2946——Belief that it would be impracticable to bond English grown hops, *Darby* 4650.

Brewers. Practice in regard to purchases by the brewers from the hop merchants; the former generally have confidence in the latter, and buy by sample, *Tooth* 1485–1491. 1534–1544. 1572–1574——Disinclination of the brewers to buy direct from the planters; probable reason, *Curteis* 3846–3848. 4015–4020——Benefit to the brewer rather than to the consumer if the duty were abolished, *Bannerman* 2228–2240——Lower prices would not

Report, 1857—*continued.*

Brewers—continued.

not be so much to the interest of witness, who is a brewer as well as a planter, as of other brewers, who buy all their hops, *Leney* 5443-5445——Effect of high and low prices upon the brewer; greater profit when prices are low, *ib.* 5474-5488.

System of credit in transactions with the brewers, *Evans* 5824-5826——In abundant years brewers lay in a stock of hops for ordinary beer, *ib.* 5910-5917——Doubt as to the amount stocked by the brewers in 1855 and 1856, *Richardson* 6341-6344——Practice of some brewers to buy for cash and some for credit, *Harryman* 6484-6486——The brewers have not much to complain of in regard to the prices paid by them for many years past, *ib.* 6487. 6499——Competition between the brewers to produce good beer, *ib.* 6500-6505.

There have been occasional prosecutions of brewers for using a substitute for hops in beer; return hereon, *Pressly* 7448-7450, and *App. p.* 412.

Practice of witness not to keep any stock of hops when prices are low, *Bass* 7564——Witness has lost by his business on the last three years, *ib.* 7590, 7591——Practice of witness's house to mix English and foreign hops; they would rather use the latter only, *ib.* 7595——One of the largest brewers in the kingdom has recently told witness that he would never brew foreign hops, *ib.* 7596, 7597——Use of certain substitutes for hops adverted to; propriety of continued restriction hereon if the duty be removed, *ib.* 7598-7607.—*See* also *Beer.*

Brunswick. Inferior hops are grown in Brunswick, which it does not pay to import into this country, *Richardson* 6308-6312.

C.

Canterbury Collection. See *East Kent.*

Capital of Hop Growers. Necessity of the grower being a large capitalist in order to hold over the sale, and at the same time to meet the duty when the crop is abundant, *Reeve* 357-368——The generality of the planters in the Weald of Kent are men of capital, *Tooth* 1547. 1550——It requires a capital of about 50 *l.* an acre for every additional acre of hop ground, *ib.* 1927——The hop growers and farmers in the Weald of Kent are not generally men of capital, *Neve* 2624-2626——Inability in most instances of the hop growers to hold over their crops for better prices, *ib.* 2627-2630——Calculation that a farm of 100 acres, including five acres of hop-land, might be undertaken on a capital of 10 *l.* an acre, *ib.* 2818-2822.

Importance of hop planters being men of capital, *Carter* 3045-3049; *T. P. Smith* 4588, 4589. 4636-4639——A man entering on a farm should have 125 *l.* of capital to each acre of hops, *Lucas* 3692, 3693. 3753——Benefit of the Excise duty to men of capital, *ib.* 3725-3727. 3736-3740. 3755. 3764——So long as there is sufficient capital a small plantation will answer as well as a large one, *ib.* 3764.

Large capital required in entering upon a hop plantation, *Bannerman* 4248, 4249——The planters in Mid-Kent are principally men of capital, *ib.* 4321——The present outcry is on the part of persons who have suffered from cultivating too much land in proportion to their capital, *Cutbush* 5365, 5366——Statement that hop growers and farmers in Sussex are generally men of capital, *Darby* 5726——The great majority of the planters are decidedly men of capital, *Harryman* 6459-6463.

Carter, William. (Analysis of his Evidence.)—Hop grower at Boughton-under-Blean, in the Canterbury district; cultivates an extent varying from twenty to one hundred acres, 2961-2964——Grows the best hops almost exclusively, 2965. 2987. 3004——Calculates that his expenses of cultivation amount to 36 *l.* 15 *s.* per acre; items of which composed, 2966-2998. 3000——The average cost of cultivation in the district may be taken at 30 *l.* an acre, witness being an experienced cultivator, 2966, 2967. 2983-2985——The expenses of picking, drying, and the duty amount, in witness's case, to about 50 *s.* a cwt., 2968. 2999. 3001——Character of the soil on which witness grows the best hops, 2993-2998.

Calculation showing, that through the full crop in 1856 there was a much greater loss per acre in East Kent than in Sussex, 3002-3010. 3018——Circumstance of the Canterbury collection, including a district called bastard East Kent, in which the produce per acre is much more than in East Kent proper, 3002. 3018——Unusually large crops grown by witness in 1855 and 1856; 3005-3009.

The East Kent growers have always been prepared to pay the duty without postponement, 3011-3014——In Sussex the farmers cultivate more hop-ground, in proportion to their holdings, than is the practice of farmers in East Kent; hence the greater distress and complaint on the part of the former in times of superabundant crops, 3012. 3064——Inexpediency of the occasional postponement of the duty, 3015-3017——Very small crop grown by witness in 1854; 3019.

Report, 1857—*continued.*

Carter, William (Analysis of his Evidence)—*continued.*

An acreage duty of 3*l.* would suit witness very well, but it would operate unequally, 3020, 3021——As regards the large crop grown by witness in 1856, compared with the average of East Kent, he attributes it to his large outlay in cultivation, 3022-3027——Loss of 7*l.* 3*s.* per acre by witness in 1856; 3028, 3029. 3079——Anxiety of witness and the East Kent planters for a final settlement of the duty question, 3029. 3035——On the whole, witness has made more by hops than anything else, 3030-3032.

There is nothing at all vexatious in the collections in the Excise duty, 3033, 3034——If the duties are to be abolished, they should be reduced gradually over a series of years, 3035——If there were an open malt trade and an open beer trade, witness would not mind free trade, 3035. 3037——Witness prefers the continuance of the duties, as at present, to their abolition, 3036-3045.

Expediency of hop growers being men of capital, 3045-3049——Doubt as to hop-growing being restricted by the Excise duty, 3052, 3053. 3057——Long periods for which some hop-gardens in East Kent last, 3054-3056. 3068——Extent of the holdings and of the hop-grounds in the parish of Boughton-under-Blean, 3058-3061——Facilities for growing hops on much of the land in Sussex, 3065-3067——Advantages of the system of marking the hops; prevention of fraud thereby, 3069-3076——Greater annual outlay after a succession of large crops, 3077, 3078.

Chancellors of the Exchequer. Witness has not known any Chancellor of the Exchequer, except the present, justify the Excise duty, *Webster* 869-873——Witness has never heard any Chancellor of the Exchequer approve of the principle of the duty, *T. Smith* 1210-1213.

Colegate Hop. Few Colegate hops grown in Worcestershire, *J. P. Smith* 4389——Advantage of such large quantities of Colegates, which are a very bad class of hops, were not produced in the Weald of Kent and Sussex, *ib.* 4389-4401——Much larger crop per acre of the Grapes and Colegates than of the Goldings, *J. Selmes* 5079-5081——Duties consequent upon, or rather anticipated from, the large produce of the Colegate hop of late years, *Waterman* 6961-6974——The Colegate is a very prolific hop, but of a very inferior kind, *ib.* 6975, 6979-6989.——*See* also *Qualities of Hops.*

Collection of Duty. Regulations and machinery of the Board of Inland Revenue for ascertaining and collecting the amount to be charged to each grower, *Pressly* and *Dobson* 13. 72-75, 135-139——The expense of collection is about 17*s.* 8*d.* per cwt. *Pressly* 20——Absence of complaint against the nature of the regulations, *Pressly* and *Dobson* 14-18. 75; *Reeve* 543; *Punnett* 2900; *Carter* 3033, 3034——Some of the regulations of the Excise are much complained of, *Webster* 802-805——Reference to the number of officers employed in each collection; return hereon, *Pressly* 7451, 7452, and *App. p.* 412.

See also *Acreage Duty*, 2. *Bonding. Payment of Duty.*

Competition. See *American Hops. Bavaria. Belgium. Customs Duty. Free Trade. Imports.*

Consumer. See *Beer.*

Consumption of Hops. Increased consumption of best hops; this is partly explained by the importation of Bavarian hops, *Tooth* 1516, 1517. 1524-1544, 1819-1823——The annual consumption is as nearly as possible 200,000*l.* old duty, *H. T. Smith* 5761——Larger useofs hops by brewers in abundant years than in scarce years, *Evans* 5901-5906——Increased consumption within the last ten years, *ib.* 5948.——*See* also *Beer.*

Cost of Cultivation. Exclusive of picking, curing, and packing, the cost of production is from 22*l.* to 25*l.* per acre, *Dobson* 281, 282. 314——Less cost of production in the case of foreign hops, *ib.* 314-316——Average expense of 24*l.* or 25*l.* an acre in the cultivation of hops near Rye, *Reeve* 420, 421. 444-446——Expense of about 10*l.* an acre in the first year of planting a hop garden, *ib.* 527——Calculation, showing an expense of about 22*l.* an acre on the cultivation of hops in Sussex after the garden is in full pole, *Webster* 585-589. 598-606. 618-622. 640, 641——Expense incurred during the first year, when there is hardly any return, *ib.* 590-597.

Calculation that in the Weald of Kent the expense of cultivation, &c. per acre varies from 15*l.* to 30*l.*, and averages 22*l.*; this includes every expense, save the picking, drying, and duty, *Tooth* 1339, 1340. 1350 *et seq.*——Less expense of cultivation in the Weald of Sussex than in the Weald of Kent, *Tooth* 1349. 1400-1411; *Neve* 2616. 2620——Varying amount expended in cultivation accordingly as the quality of the soil varies in regard to its capabilities of production, *Tooth* 1354-1419——Independently of the yearly expense of 22*l.* an acre for cultivation, there is a preliminary expense of about 10*l.* an acre in rearing each plantation, *ib.* 1429-1436——Details showing a total of 24*l.* 16*s.* 6*d.* as the cost estimated by witness for cultivating an acre of hops in Sussex, *Reeve* 1938-1942.

Calculation that it costs 27*l.* 10*s.* to cultivate an acre of hops about Brenchley in the Weald of Kent; in witness's case it has cost 30*l.*, but he considers 50*s.* of this

Report, 1857—*continued.*

Cost of Cultivation—continued.

outlay to have referred to the permanent improvement of the land, *Monckton* 1986–2040. 2056——The cost of cultivation about Maidstone up to the time of picking is about 26*l.* an acre, *Punnett* 2279——The average expense of cultivation in the Weald of Kent is about 25*l.* an acre, *Neve* 2562——Respects in which the expense of cultivation is greater in the Weald of Kent than about Canterbury or Maidstone, *ib.* 2571–2600.

Information founded on certain returns relative to the cost of cultivation per acre respectively in the Wealds of Kent and Sussex, and in Mid Kent and East Kent; conclusion that it is less in Sussex than in the Weald of Kent, and less in the latter district than in Mid Kent and East Kent, *Punnett* 2837–2870——Witness puts the cost of cultivation in Sussex at 23*l.* 10*s.* an acre, and in the Rochester collection at 26*l.* an acre, *ib.* 2839–2843. 2850, 2851. 2869——Witness's expenses of cultivation (in the Canterbury district) amount to 36*l.* 15*s.* per acre; items of which composed, *Carter* 2966–2998. 3000——The average cost of cultivation in the district may be taken at 30*l.* an acre, witness being an expensive cultivator, *ib.* 2966, 2967. 2983–2985——Propriety of including in the cost of cultivation, the interest on the capital first laid out on oast houses, drainage, &c., *ib.* 2972, 2973——Greater annual outlay after a succession of larger crops, *ib.* 3077, 3078.

The cost of cultivation in the Weald of Sussex varies from 21*l.* to 25*l.* an acre, *Kenward* 3083, 3084——Detailed statement showing a total of 22*l.* 6*s.* 6*d.* as the average cost of cultivation per acre in Mid Kent, *Hammond* 3388–3392. 3394——Mr. Carter's estimate of 36*l.* as the average cost per acre is much too high, *ib.* 3389, 3390——Greater expense of cultivation in Sussex than in Mid Kent, or the Weald of Kent, *ib.* 3395, 3396——The cost of cultivation in witness's neighbourhood (near Farnham) is from 22*l.* to 25*l.* per acre, *Harris* 3421——Witness calculates his cost of cultivation, in Yalding parish at 27*l.* an acre, *Hartridge* 3614–3616.

The cultivation in witness's district, near Maidstone, costs from 25*l.* to 30*l.* an acre, *Lucas* 3694——Less expense of cultivation in Mid Kent than in Sussex, *Curteis* 4095——Witness's cost of cultivation per acre in Mid Kent up to the time of picking is from 26*l.* to 27*l.* *Bannerman* 4134, 4135. 4251. 4259–4275——Witness's cost of cultivation per acre, near Worcester, including interest, is 22*l.* 10*s.*, *J. P. Smith* 4517——The cost of cultivation of witness's land in Herefordshire is 18*l.* 19*s.* per acre; items of this cost, *Taylor* 4740. 4742. 4805–4810.

Estimate of 54*l.* 17*s.* as the expense per acre of witness's first class hop land, near Farnham; particulars hereon, *Nichols* 4851–4860——Calculation that the cost of cultivation per acre is 24*l.* in Mid Kent, and 27*l.* in the weald, *Thirkell* 5091–5104——The cost of cultivation per acre in Teston is about 30*l.*, in Yalding 27*l.*, and in the Weald of Kent 24*l.*, *Cutbush* 5306–5313. 4346–5351——Witness calculates his cost of cultivation on his land in Mid Kent at 30*l.* an acre, *Leney* 5430, 5431——The cost of the cultivation of witness's land near Maidstone is about 32*l.* an acre, *Nash* 7145, 7146.

See also *Bavaria*, 1. *Belgium*, 1. 3, 4. *Drainage.* *Manure.* *Oast Houses.* *Poling.* *Profit or Loss of Hop-growing.* *Wages.*

Curteis, Major Edward. (Analysis of his Evidence.)—Cultivates some hop land near Rye in the Weald of Sussex; has been conversant with hops all his life, 3810–3819——Good character of witness's hop land, 3814–3816——Practice generally of the planters to sell their hops through factors, 3820–3822——Commission charged by the factors; charge also made for warehouseing, 3823–3826. 3833, 3834. 4070–4072——The hops grown by witness are the Grape & Jones's, 3827, 3828——Practice as regards sales by the planters to country merchants, 3829–3832. 3836. 3844, 3845——Very few planters in Sussex have the means of warehousing their hops, 3835. 4024–4026.

The crop is chiefly sold by Christmas, more especially in high-priced years, 3836. 3849, 3850——Frequent instances of Sussex planters mortgaging their crops to the factors in order to raise money to meet the duty, 3837–3839. 3864, 3865. 3870–3876——A large portion of the crop is sold when picked in order to pay the duty, 3840–3843——Disinclination of the brewers to buy direct from the planters; probable reason, 3846–3848. 4015–4020.

Effect of the duty to lower prices, 3851——Belief that if the duty were abolished, the producer and the consumer would each benefit considerably, 3851 *et seq.*——Grounds for concluding, that if there were no duty the factors would be done away with, and the profits now obtained by them divided between the producer and consumer, 3851–3856. 3967, 3968. 3991 *et seq.*——Profit made by the factor over and above the charge for commission and warehousing, 3856–3862. 4070–4075——Number of hop-factors and merchants in the borough; the factors are, with two exceptions, merchants as well as brokers, 3858, 3859. 3866–3869.

Information relative to the mode of cultivation and character of the Bavarian hops; belief that, though equal to the best English hops, they could not successfully compete with them in the home market, in the event of free trade, 3878–3891. 3927–3946. 3958–3966

Report, 1857—*continued.*

Curteis, Major Edward. (Analysis of his Evidence)—*continued.*

3966——Belief that if there were free trade, Sussex would grow the Golding hop as well as Kent; grounds for this conclusion, 3891-3914——Witness has no apprehension of competition on the part of Belgium with Sussex or the Weald of Kent, in the event of free trade, 3915-3919. 3944, 3945——The best Kent hops are the most likely to suffer by competition, 3917. 3944, 3945.

Tabular statement, and explanation thereon, of the expenses and receipts of witness in respect of his hops in 1855 and 1856; aggregate loss of 1,558*l.*, 3920-3925——In 1855 there would have been a profit on witness's hops at 2*l.* 2*s.* 9*d.* per cwt. if there had been no duty, 3920——Effect of the duty to restrict the cultivation, 3926. 4082, 4083——Statement as to foreign hops having been imported in 1854, and dried in Kent and the Borough and sold as English hops, 3946-3957.

In abundant years the planter entirely sacrifices the duty, and on an average of years he by no means gets it all back in the price, 3969-3975——Large produce per acre and high price obtained by witness in 1854; it more than covered his loss in 1855 and 1856; 3976-3985. 4107, 4108——Small quantity of hops sold to private brewers through grocers; this cannot be prevented, and is not to be objected to, 3986-3990. 4047-4058——Extent to which the consumer might be benefited in the event of free trade, 3994-3998.

Disinclination of factors to buy from planters who have sold direct to brewers, 4018-4020——If there were no factors the planters would soon find means of warehousing at home, 4024-4028——In the event of the abolition of the duty there would not be the same necessity as at present for the planter to mortgage his crop to the factor or brewer, 4029-4046. 4060-4062—— After a few years of free trade there would be but few foreign hops imported, 4063.

Remarks on the practice of factors to make a deduction from the planters' weight, though witness has found the weight of his hops to increase after the Excise have weighed them, 4064-4069. 4084-4094——Fraud, notwithstanding the marking of the hops; instance of this, 4076-4081——Complaint as to the uncertain amount of the duty, 4094; also as to the uncertainty of the time of payment, *ib.*——Better profit on Mid Kent hops than Sussex hops, 4095——Instance of hops being left ungathered in Sussex, 4096, 4097.

General feeling of the Sussex planters in favour of free trade, though, if possible, they would like to have the Customs duty retained, 4098-4101——Although the long credit is in some respects injurious, many planters would be ruined if the duty were always promptly enforced, 4102-4106——Those who have capital can alone avoid loss by selling in abundant years, 4109, 4110——Witness fully believes that there has been a loss on the aggregate cultivation in Sussex for the last ten years, 4111-4116——Diminution within the last two years in the extent of ground under cultivation, 4117, 4118.

Customs Duty:

1. *Amount of the Duty; Alterations since its Imposition.*
2. *Reduction in* 1854; *Effect thereof upon Imports and Prices.*
3. *Reduction or Abolition generally; Objections thereto.*

1. *Amount of the Duty; Alterations since its Imposition:*

The Customs duty on foreign hops is 4¾*d.* per lb., or more than double the Excise duty, *Pressly* 22-24——Small deduction allowed from the duty, *Pressly and Dobson* 167-171——Alterations which have taken place in the amount of the duty, *St. John* 7064-7067.

Account showing the imposts and the successive alterations in the rate of duty in each of the years from 1800 to 1815, *App. p.* 4. 11.

2. *Reduction in* 1854; *Effect thereof upon Imports and Prices:*

The foreign duty was reduced to 1 *l.* per hundredweight from the 8th August 1854 to the 1st August 1855, and was followed by an unusually large importation, *Dobson* and *Pressly* 28-31——Hardship upon the home grower by the reduction of the duty, *Reeve* 474. 503-512; *Webster* 790-797; *Kenward* 3116-3124——Remarks upon the reduction of the duty; an increased quantity was not imported in consequence, nor was the price reduced, inasmuch as the brewer and the importer exclusively benefited by the reduction, *Punnett* 2533-2539——Improbability of the Customs duty being again lowered because of a short crop in this country, *Punnett* 2537-2556; *Kenward* 3125, 3126, 3129-3132.

The reduction of 1854 was a breach of faith on the part of the Chancellor of the Exchequer, and was a great hardship upon many of the planters, *Punnett* 2540. 2548——Effect of lowering the duty in 1854; the reduction was not fair, *J. Selmes* 5068-5075——Witness considers that the reduction of the duty led to a reduction of prices, and robbed him of about 5,000 *l.*, *Thirkell* 5175-5185.

Remarks relative to the very high price of hops during a short period in 1854; witness got 17 *l.* per cwt. for his hops, which are among the best in Sussex, but the price fell in the market about 50 *l.* per cent. in three months, mainly in consequence of the reduction

Report, 1857—*continued.*

Customs Duty—continued.

2. *Reduction in* 1854; *Effect thereof upon Imports and Prices*—continued.

of the Customs duty, *Darby* 5612-5621. 5635-5648. 5654, 5655. 5675——Unusually large importation in 1854, *H. T. Smith* 5752-5754. 5778, 5779——Great depreciation in prices after the foreign imports; in four or five months Sussex hops fell fifty per cent., *ib.* 5755, 5756. 5778-5788——Reduction of from 20 *l.* to 8 *l.* per cwt. between October 1854 and March or April 1855 in the price of some hops sold by witness to Mr. Bass, *Evans* 5930-5937. 5951-5955.

Statement that Sussex hops fell 25 *l.* per cent. in little more than a fortnight in 1854, and fifty per cent. in a little more than five months, and not in three months, as before stated, *Darby* 6667, 6668. 6670. 6678, 6679——Particulars as to the prices obtained by witness for Sussex and best hops in September 1854 and following months; there was nothing like a reduction of fifty per cent. in six months, *Waterman* 7095-7121——Witness was told by the Bavarian merchants that as many hops of the better sort would have been sent to this country in 1854 if the duty had not been reduced, *Lucas* 7407-7411——Probable exclusion of many worthless hops if the duty had not been lowered, *ib.* 7408-7412.

Considerable importation would have taken place in 1854 without the reduction of the duty, *St. John* 7470——Tendency of the reduction to cause an increased importation, *ib.* 7471-7473. 7478.

Particulars as to the prices of Sussex and American hops in each of the months from September 1854 till May 1855; great reduction in the price of Sussex hops, and nominal character of the business in consequence of the increased importation through the reduction of the duty, *Parkes* 7514-7549.

3. *Reduction or Abolition generally: Objections thereto:*

Larger importation if the Customs duty were reduced to the level of the Excise duty, *Dobson* 263-274——Anticipated revolution in the hop growing of this country if foreign hops were placed in the same position in regard to duty as English hops, *Reeve* 473-477. 516-518——Grounds for the conclusion that a reduction in the Customs duty on foreign hops does not lead to a reduction in the price, but is so much additional profit to the foreign grower, *Webster* 700-718. 740-743. 755. 776-785. 853——Grounds for the apprehension of injurious competition if the Customs duty be reduced or abolished, *H. Selmes* 1236-1253. 1260, 1261; *Punnett* 2509 *et seq.*; *Kenward* 3102 *et seq.* 3175-3177; *Hammond* 3206-3232. 3372-3375; *Harris* 3454-3456. 3464 *et seq.*; *J. P. Smith* 4446 *et seq.* 4554-4566. *Taylor* 4656 *et seq.*; *Thirkell* 5173 *et seq.*; *Darby* 5604 *et seq.*; *H. T. Smith* 5798-5800; *Parkes* 7509-7550——Belief that the Customs duty on foreign hops is no advantage to the English grower, *Tooth* 1610. 1612. 1709. 1716. 1733.

Examination in support of the retention of the Customs duty on hops, although the duty on barley has been taken off, *Punnett* 2429-2435. 2446 *et seq.*——Benefit of the Customs duty to the home grower in abundant years, when it keeps up the price, *ib.* 2509-2512. 2526-2534. 2823-2837——Dissent from the evidence of Mr. Webster as to the Customs duty not affecting the price of foreign hops, *ib.* 2527-2530——Witness would like to see the present duty retained, and the Excise duty reduced, *ib.* 2829.

The Customs duty, in being heavier than the Excise duty, is so far a protection to the home grower, *Mannington* 5003, 5004. 5012; *J. Selmes* 5064. 5068-5075. 5085——Advantage to the home grower if the duty were increased, *Cutbush* 5325, 5326——Witness is strongly in favour of the continuance of the Customs duty, though involving the continuance also of the Excise duty, *Leney* 5438-5442——Witness headed a deputation to the Chancellor of the Exchequer in 1842 against a reduction of the Customs duty from 8 *l.* 10 *s.* to 4 *l.* per cwt., *Darby* 5602, 5603——Complaint that the Customs duty has been reduced from 8 *l.* to 2 *l.* 5 *l.*, whilst the Excise duty has been increased, *ib.* 5605. 5685——Larger importation of foreign hops in 1854 and 1855 if they had been duty free, *ib.* 5605.

Belief that the Customs duty does not act as a prohibitory duty upon the finer quality of hops, *St. John* 7480, 7481.

See also *Bass, Mr.* *Bavaria*, 11, 12. *Belgium*, 7, 8. *Free Trade.*

Cutbush, Thomas Robert. (Analysis of his Evidence.)—Farms 200 acres of hop land in the parishes of Teston and Yalding; began in 1818 with 140 acres, 5294-5305——The land in Teston is on the Ragstone Hills, 5296——The land in Yalding is held by the seller of the hops to be in Mid-Kent, and by the buyer to be in the Weald of Kent, 5297-5300——The cost of cultivation per acre in Teston is about 30 *l.*, in Yalding 27 *l.*, and in the Weald of Kent 24 *l.*, 5306-5313. 5346-5351——Witness grows principally the Golding hop, for which Teston parish has a high reputation, 5314. 5331. 5341, 5342——He has found hop-growing to be on the whole a profitable business, 5315, 5316. 5341-5345.

Approval of the Excise duty; it restricts the cultivation, which would otherwise be in excess, 5317-5324. 5367——Advantage to the home grower if the Customs duty were increased, 5325, 5326——Comparatively large employment afforded by witness's hop grounds

Report, 1857—*continued.*

Cutbush, Thomas Robert. (Analysis of his Evidence)—*continued.*

grounds in Teston; detriment hereon if the grounds were thrown out of cultivation, 5327, 5328. 5332–5340. 5408–5412——Much longer duration of a hop garden on the Ragstone Hills than in the Weald of Kent, 5352–5354.

The bastard East Kent hops are so called from being grown in certain outlying parishes, where the soil is inferior, 5355–5362——Witness has found big crops pay better than small ones, 5363, 5364——The present outcry is on the part of persons who have suffered from cultivating too much land in proportion to their capital, 5365, 5366——The duty is paid by the consumer, 5368–5370——Great fluctuation in prices in 1853; 5374–5377——It would be better if the duty were all payable in March, 5378.

Exception taken to the interference of Mr. Bass and some others, in 1854, which led to the reduction of the Customs duty, 5379–5393——Disapproval of an acreage duty, 5394, 5395——Approval of a graduated duty, that is if the Excise duty be altered at all, 5396–5404——If the Customs duty be abolished, foreign hops will inundate the market, 5396——Injurious effect upon the cultivation of underwood if the cultivation of hops be restricted, 5405–5407——Witness considers that his capital would have been fully as remunerative if it had been invested in hop cultivation in Sussex, 5413–5421.

D.

Darby, George. (Analysis of his Evidence.)—Has been a hop grower for nearly forty years; does not now cultivate much land, 5597, 5598——Represented Sussex in Parliament for nine years up to 1845; 5599–5601——Headed a deputation to the Chancellor of the Exchequer in 1842 against a reduction of the Customs duty from 8*l.* 10*s.* to 4*l.* per cwt., 5602, 5603.

Argument that to remove the Customs duty on hops, and to leave the Excise duty on malt, would be an act of the grossest injustice to the hop growers, 5604 *et seq.*——The duty upon malt now acts as an additional duty upon hops, 5605——Effect of the duty upon malt to restrict the consumption of malt and of hops; grounds for this conclusion, 5605–5609. 5619–5625. 5690——Complaint that the Customs duty has been reduced from 8*l.* to 2*l.* 5*s.*, whilst the Excise duty has been increased, 5605. 5685.

Decided advantage to the foreigner as compared with the home grower, if both the duties were taken off, 5605. 5649, 5650——Impracticability of doing without factors if the duties were removed, 5605——Practice in other trades as well as the hop trade, for the factor to make advances to those consigning their goods to them, 5605. 5653——Larger import of foreign hops in 1854 and 1855, if they had been duty free, 5605.

Evidence in support of the conclusion that the price of hops has practically no effect upon the price or consumption of malt or barley, 5606–5625——Remarks relative to the very high price of hops during a short period in 1854; witness got 17*l.* per cwt. for his hops, which are among the best in Sussex, but the price in the market fell about 50 per cent. in three months, mainly in consequence of the reduction of the Customs duty, 5612–5621. 5635–5648. 5654, 5655. 5675——Witness has never found the price of beer to fall when hops have been cheap; nor was it generally raised in 1854, when hops were unusually dear, 5612, 5613.

As regards the Excise duty upon malt, witness can form no other conclusion than that it is paid by the consumer, 5621——The abolition of the Customs duty on hops would have a serious effect upon employment in Sussex, 5626——Way in which the abolition of the duty would be injurious as regards the wood fuel used by the poor in Sussex, *ib.*——Free trade would prevent Sussex hops from being grown profitably, and witness and other planters would at once grub their hops, 5627 *et seq.*

Data for the conclusion that in the event of free trade, hops grown in America, Bavaria and Belgium will successfully compete with English hops, and will be fatal to the hop trade of the country, 5627–5634. 5649–5651. 5685–5705. 5717–5721. 5739–5741——Belief that on an average of years, hop growing in Sussex is a profitable occupation, 5629, 5630——Extent of foreign imports in the years 1840–45; 5644, 5645——Witness rarely holds his hops; he always sells when they are anything like a good price at Robertsbridge fair, 5646.

Opinion that it would be impracticable to bond English-grown hops, 5650——Witness would like to have the Excise duty reduced or abolished, and the Customs duty retained, 5651. 5727. 5739, 5740——Belief that more money is lost than made by holding hops, 5652——Mischief and distress consequent on the credit given as regards the payment of the duty, 5652, 5653. 5727–5730——Better position of the labourers and shopkeepers when there are abundant crops, 5652——Suggested remission of one half year's duty, conjointly with the adoption of a system of short credit, 5652, 5653. 5727–5729.

Doubt whether the growers of barley regard the duty upon hops to be an additional grievance to the duty upon malt, 5656–5660——Probability of there being nearly two millions of acres under cultivation in barley, 5661–5668——Witness further contends

Report, 1857—*continued.*

Darby, George. (Analysis of his Evidence)—*continued.*

that the price of barley is not affected by the duty or price of hops, 5669–5684——Remarks relative to the effect upon the home trade of the abolition of the duties upon wool and corn, 5686–5693——Difficulty as regards the drawback upon exported hops if an acreage duty be adopted, 5688.

Statement as to the large amount of labour required in the cultivation and picking, &c. of hops; considerable employment and earnings of women and children, 5706–5716. 5735–5737——Any disadvantage to the foreign grower on the score of the malt duty would not protect the home grower from undue competition, 5717–5720——Doubt as to the proportion of the Excise duty which is paid by the consumer, 5721–5725.

Although witness expresses some objection to a graduated duty, he is not on the whole unfavourable to it, 5726——Statement that hop growers and farmers in Sussex are generally men of capital, 5726——Explanation relative to the assessment of the extraordinary tithe on hops, to the effect that it is not always a fair indication of the value of the crop, 5731–5733.

[Second Examination.]—Statement that Sussex hops fell 25 per cent. in little more than a fortnight in 1854, and 50 per cent. in a little more than five months, and not in three months, as before stated, 6667, 6668. 6670. 6678, 6679——Further statement in regard to the large employment given by the hop grounds; calculation that 300,000 persons are employed yearly in picking, 6668, 6669. 6671–6677——Calculation of 15*l.* an acre as the cost of all the labour employed, 6673–6677.

Defalcations (Payment of Duty). Few defalcations in the payment of the Excise duty, *Dobson* 222, 223——There have not been many prosecutions for the recovery of the duty, *Webster* 806–808.

Number of cases in which proceedings have been taken against hop planters for recovery of duty or other offences during the last ten years, *App. p.* 407.

Deterioriation. Remarks relative to the deterioration of hops when held over, or kept in warehouse for any length of time: extent of the deterioration, *Reeve* 481–499; *Webster* 666–668; *Tooth* 1575–1591; *Punnett* 2336–2350. 2353–2358. 2436–2445; *Neve* 2654; *Evans* 5894–5898——The best hops deteriorate least, *Punnett* 2339, 2340——Some hops are kept so long, that they really are useless, *ib.* 2383——Extent of deterioration respectively of British and foreign hops, *Neve* 2716. 2718, 2719; *H. T. Smith* 5769–5771——Deterioration of late years in the quality of East Kent and Mid-Kent hops in consequence of the system of over-manuring, with a view to increased produce, *Evans* 5883–5892——Deterioration of the English hop in consequence of the too rapid drying, *Bass* 7574, 7575. 7588.

Disposal of Crop. The crop is mainly disposed of early in the season, and before the end of the year, *Dobson* 100. 178; *Webster* 737, 738; *Lucas* 3777——The crop is chiefly sold by Christmas, more especially in high priced years, *Curteis* 3836. 3849, 3850——A large portion of the crop is sold when picked in order to pay the duty, *ib.* 3840–3843——Larger proportion of the produce sold in the first four months after the picking in full-crop years, than in short-crop years, *Harryman* 6469–6472.

Distress. The pressure as regards the Excise duty is peculiarly heavy at the present time, *Tooth* 1903——The distress in 1847 and 1848 was largely, but not entirely, owing to the heavy duty, *Punnett* 2391–2396——Estimated loss of from 40*l.* to 50*l.* an acre by the hop-growers in the Wealds of Kent and Sussex, during the last three years; consequent distress, *Neve* 2753–2761.

The present distress in Sussex and the Weald of Kent is clearly attributable to the over production, *Punnett* 2824–2828. 2837. 2861; *T. P. Smith* 4441, 4442. 4487–4496. 4550. 4597——Reason of the great distress among the home growers, when the Customs duty was higher than it now is, *Punnett* 2830–2837——Increased plantation without proper capital adverted to as the cause of distress in Mid-Kent in 1848 and 1849, *Lucas* 3728–3731——Partial extent to which witness considers that the Excise duty has aggravated the distress, *Lucas* 3766–3785.

Complaint and distress owing to the long credit given for the payment of the duty, *Leney* 5451, 5452. 5463; *Darby* 5652, 5653. 5727–5730——Witness attributes the distress among the planters in Sussex and the Weald of Kent, to the system of long credit, and the unduly large plantations which they have been tempted to grow, and not to the burden of the duty, *Harryman* 6531–6560.

See also *Colegate Hop. Forced Sales. Full Crops. Loans to Growers. Over Supply. Profit or Loss of Hop-growing.*

Dobson, Thomas. (Analysis of his Evidence.)—See *Pressly, Charles, &c.*

Draft Reports. Report proposed by the Chairman of the Committee, *Rep. p.* viii, ix——Report proposed by Mr. Knight, *ib.* ix–xiv——Consideration of the latter report, *ib.* xiv *et seq.*

Report, 1857—*continued.*

Drainage. Necessity of an outlay of from 5 *l.* to 6 *l.* an acre in draining the land about Rye, in order to make it fit for the growth of hops, *Reeve* 345-353. 398-406. 1930, 1931. 1934——Character of the drainage necessary on the hop grounds; its necessity equally for other purposes, *Webster* 599, 600; *Reeve* 1932-1937; *Neve* 2631-2636——In Mid Kent, drainage is not generally required as in Sussex, *Hammond* 3396; *Thirkell* 5101——The best land for hops does not require draining, *Bannerman* 4262.

See also *Cost of Cultivation.*

Drawback on Exports. Drawback is allowed on hops exported, *Dobson and Pressly*, 142, 143. 155-157. 193-197——Drawback on beer exported; the hop duty is not computed, *Dobson* 149-153.——*See* also *Exports.*

Drying of Hops. Better system of drying in the Weals of Kent and Sussex, than in Mid Kent and East Kent, *Waterman* 6993. 6997-7003.——*See* also *Picking and Drying.*

Duration of Plantations. On the wet soil held by witness near Rye, a hop plantation will last about fifteen years, *Reeve* 396, 397——In Sussex generally the plantation lasts on an average for about twelve years, *Webster* 607. 615-617——Long periods for which some hop gardens in East Kent last, *Carter* 3054-3056. 3068——The plantations in Herefordshire last twenty or thirty years, and sometimes much longer, *Taylor* 4811——Much longer duration of hop gardens on the Ragstone Hills than in the Weald of Kent, *Cutbush* 5352-5354.

E.

East Kent. Effect of the better soil in East and Mid Kent, to produce a better hop than can be produced in Sussex, *Webster* 826-835; *Neve* 2567-2570. 2584-2591——Whilst the growers of the inferior hops in 1855 and 1856 lost all the duty, the growers of the finer and dearer, but less productive hops, as in East Kent, realised the duty and a profit as well, *Tooth* 1476, 1477. 1718, 1719. 1808-1810—— Particulars as to the produce of East Kent; increased produce of the Jones's hops, without any increase of the Golding's or better hops, *ib.* 1510-1523. 1557-1563. 1569, 1570——Average produce per acre in the Canterbury collection, in each of the years 1847-51, and in 1856, *Reeve* 1947——Character of the soil on which witness grows the best hops, *Carter* 2993-2998.

Calculation showing that through the full crop in 1856, there was a much greater loss per acre in East Kent than in Sussex, *Carter* 3002-3010. 3018——Circumstance of the Canterbury collection including a district called bastard East Kent, in which the produce per acre is much more than in East Kent proper, *ib.* 3002. 3018——Produce and price respectively in East Kent and Sussex in 1856, *ib.* 3002, 3003. 3010——The East Kent growers have always been prepared to pay the duty without postponement, *ib.* 3011-3014——Loss of 7 *l.* 3 *s.* an acre by witness in 1856, *ib.* 3028, 3029. 3079——Anxiety of witness and the East Kent planters for a final settlement of the duty question, *ib.* 3029. 3035.

Cause of the better position of the East Kent planters than of the Sussex planters in not losing the duty for the last few years, *Thirkell* 5239-5249——More valuable crops produced on the better lands, *ib.* 5260-5263——The bastard East Kent hops are so called from being grown in certain outlying parishes where the soil is inferior, *Cutbush* 5355-5362——They are grape hops, *ib.* 5357——The East Kent hops are generally sold by October or November, *Evans* 5975. 5977. 5980.

Number of planters in the Canterbury collection in each of the years 1847-56, *App. p.* 407.

See also *Acreage Duty*, 3. 5. *Bavaria*, 11. 12. *Belgium*, 7. 8. *Cost of Cultivation. Customs Duty*, 3. *Excise Duty. Free Trade. Golding Hop. Management of Hops. Prices. Profit or Loss of Hop Growing*, 2. 5. *Qualities of Hops.*

Employment. Outlay near Rye of from 10 *l.* to 12 *l.* an acre on manual labour, *Reeve* 371, 372——Opinion that the manual labour in cultivating hop-grounds comes to about 15 *l.* an acre, *T. Smith* 962-964. 972——Probable amount of labour employed upon the Sussex hop-grounds, *ib.* 965-971——Much greater outlay in manual labour in the case of hops than of other agricultural produce, *Hammond* 3245-3250.

Large population in witness's district whom it would be impossible to employ if hop-growing were to cease, *Lucas* 3703-3711. 3740, 3741——Local advantages conferred by hop-growing on account of the increased employment thereby, *Bannerman* 4144-4149; *Nash* 7137. 7139——Comparatively large employment afforded by witness's hop-grounds in Teston parish; detriment hereon if the grounds were thrown out of cultivation, *Cutbush* 5327, 5328. 5332-5340. 5408-5412.

The abolition of the Customs duty upon hops would have a serious effect upon employment in Sussex, *Darby* 5626——Statement as to the large amount of labour required in the cultivation and picking of hops; considerable employment and earnings of women and children, *ib.* 5706-5716. 5735-5737——Further statement in regard to the

Report, 1857—*continued.*

Employment—continued.

large employment given by the hop-grounds; calculation that 300,000 persons are employed yearly in picking, *Darby* 6668, 6669. 6671–6677——Calculation of 15*l.* an acre as the cost of all the labour employed, *ib.* 6673–6677.

Belief that the apprehension in regard to the effect of free trade as likely to throw lands out of cultivation and people out of employment, is quite unfounded, *Bass* 7168. 7180.

See also *Area of Cultivation. Free Trade. Wages.*

Evans, Robert M. (Analysis of his Evidence.)—Hop-merchant; never acts as factor, and deals principally in English hops, 5805–5811——Buys hops generally through the factors, except in the case of East Kent hops, which it has been the custom to buy directly from the growers, 5812–5821. 5831–5836——Purchases from the grower or factor are generally ready money transactions, 5822, 5823. 5827–5829——System of credit in transactions with the brewers, 5824–5826——Loans are not advanced by witness to the growers, 5827.

Very superior quality of the Bavarian hops; they are better than the best English hops, 5837–5839. 5853, 5854. 5875. 5881, 5882. 5940–5942——Excellent quality of the Poperinghe hop grown in Belgium, 5840–5842——Uncertain but reduced prices if there were free trade, 5843–5846——Increasing export of English hops to Australia; they are sent only in limited quantities to the Continent, 5847–5852. 5947——Improbability of any large export of English hops in the event of free trade, 5853–5867——Free trade would benefit the foreigner only, 5860–5862——Bavarian yearlings of the best quality deteriorate less than English yearlings, 5868–5875——Comparatively inferior quality of Belgian hops, 5876, 5877.

Deterioration of late years in the quality of East Kent and Mid Kent hops, in consequence of the system of over-manuring with a view to increased produce, 5883–5892——Extent of deterioration in hops by keeping, 5894–5898——Necessity of new hops for certain descriptions of beer, 5899, 5900. 5912–5914——Larger use of hops by brewers in abundant years than in scarce years, 5901–5906——Reference to the high price of 35*l.* per cwt. as having been given for hops in 1817; 5907, 5908. 5918. 5924–5927.

The lowest price at which hops of fair quality have been sold is 50*s.* per cwt., 5909——In abundant years brewers lay in a stock of hops for ordinary beer, 5910–5917——Very high prices in 1854; foreign hops were not sold at the highest prices, 5919–5923. 5928——Reduction of from 20*l.* to 8*l.* per cwt. between October 1854 and March or April 1855, in the price of some hops sold by witness to Mr. Bass, 5930–5937. 5951——Increasing importation of Bavarian hops, 5943–5946——Increased consumption within the last 10 years, 5948.

Material effect of the reduction of duty in 1854 in reducing prices, 5952–5955——Circumstance of English hops having sold in 1855 as low as 35*s.* per cwt. 5956–5958——Coarser description of hops used in porter, 5959–5961. 5981——Consideration of the effect of sulphuring hops, as was the case with those sold in 1855, at 35*s.* per cwt.; how far it is considered injurious to the beer, 5962–5974. 5977, 5978——The East Kent hops are generally sold by October or November, 5975. 5979, 5980.

Evasion (*Payment of Duty*). Absence of evasion of the Excise duty, *Pressly and Dobson*, 19.

See also *Defalcations.*

EXCISE DUTY:

1. *Amount of the Duty; its uncertainty.*
2. *Partial Operation of the Duty.*
3. *Objections generally to the Duty; its Abolition recommended.*
4. *Suggested Reduction, by the Abolition of the War Duty.*
5. *Doubt as to the Expediency of Total Abolition.*

1. *Amount of the Duty; its uncertainty:*

The Excise duty on hops was first imposed in 1711, at the rate of one penny per pound weight, *Pressly* 3——Alterations in the rate up to 1840, since which year it has been fixed at twopence in the pound, with an addition of five per cent., *ib.* 3. 65–69——The average annual produce of the duty for the last three years has been 434,485*l.*, *ib.* 12——Per-centage of the duty in proportion to the price, *Pressly and Dobson* 21——Amount of the duty respectively on malt, hops, and beer, previously to 1830 and at the present time, *ib.* 49–64——The average duty for the last ten years has been 352,798*l.*, *ib.* 180, 181——The receipts per acre vary immensely in the different collections, *Pressly* 221.

Low amount of the duty in the years 1823, 1825, 1840 and 1853, *Webster* 687–690——The whole duty is 18*s.* a cwt., of which 10*s.* 8*d.* is the old duty, *Punnett* 2280. 2914——Calculation that the duty now amounts to 19*s.* 7*d.* per cwt., *Hartridge* 3676–3685——Complaint

Report, 1857—*continued.*

Excise Duty—continued.

1. *Amount of the Duty; its uncertainty*—continued.

——Complaint as to the uncertain amount of the duty, *Curteis* 4094——The estimate of the duty for the present year is now from 120,000*l.* to 130,000*l.*, *J. P. Smith* 4583.

2. *Partial Operation of the Duty:*

Unequal bearing of the duty upon the high-priced and upon the low-priced hops, *T. Smith* 1179, 1180. 1201–1209; *Tooth* 1476–1482. 1703–1707. 1716–1723. 1806–1812——The lands producing most hops are now most heavily taxed, the inferior hops being generally the largest crops, *H. Selmes* 1264–1270——Those receiving the smallest profit pay the most duty, *Tooth* 1476 *et seq.*; *Neve* 2653——Advantages under the present system of the high-priced cultivators of Mid and East Kent, as compared with the low-priced cultivators of the Weald of Kent and Sussex, *Monckton* 2185–2192. 2206. 2259–2267; *Thirkell* 5124–5145——The low priced planters now pay a great deal too much, and in abundant years do not recover the duty, *Monckton* 2251. 2253, 2254——Witness submits that a similar duty upon inferior priced hops and upon high-priced hops is not in itself fair, *Punnett* 2864.

3. *Objections generally to the Duty; its Abolition recommended:*

Peculiar oppression of the duty when there are very full crops and low prices; it is often not recovered in the price, *Reeve* 354 *et seq.*; *Webster* 693–699. 779–784; *T. Smith* 907 *et seq.*; *Tooth* 1463 *et seq.*; *Punnett* 2330 *et seq.*, 2504–2507; *Neve* 2670, 2671; *Hammond* 3130 *et seq.*; *Curteis* 3969–3975; *Mannington* 4999–5003; *Bannerman* 5150–5154. 5241–5247; *Thirkell* 5238.

Equal restriction upon the home grower by the Excise duty of 1 *l.* per cwt. as upon the foreign grower by the Customs duty of 45 *s.* per cwt., *Webster* 740 *et seq.*——It is well known that the Excise duty operates very injuriously upon the home grower, *ib.* 755——The duty should be removed, *Tooth* 1611——Effect of the duty to increase the risk and losses of hop-growing, *ib.* 1833–1837——Unfairness of the present tax upon the quantity, *Monckton* 2153–2159. 2175–2178. 2185——Expediency of the duty being a tax upon profits rather than upon produce, *ib.* 2185. 2255–2259. 2271, 2272.

Belief that if there had been no duty at all in 1855 and 1856 the planters would have got a better price for their hops, *Neve* 2666, 2667. 2676 *et seq.*, 2782——The present duty is monstrous; if it affected the whole community it would not be submitted to for a week, *ib.* 2794–2798——Witness would rather have free trade than the present system, *Hammond* 3203–3206. 3216, 3217; *Nash* 7131. 7133–7135——Belief that if the duty were abolished the producer and the consumer would each benefit considerably, *Curteis* 3851 *et seq.*; *Nash* 7161, 7162——Effect of the duty to lower prices, *Curteis* 3851——In abundant years the planter entirely sacrifices the duty, and on an average of years he by no means gets it all back in the price, *ib.* 3969–3975.

The Excise duty is no benefit to the grower, and in abundant years is very oppressive, *J. Selmes* 5064–5067. 5077; *Thirkell* 5111, 5112. 5231–5238——Witness does not approve of the present scale of duties, nor yet of free trade, *Thirkell* 5105–5108——Witness would like to see the Excise duty abolished, and the Customs duty retained or increased, *Thirkell* 5109–5111. 5114–5117. 5211–5216; *Leney* 5439–5441; *Darby* 5651. 5672. 5739, 5740——The abolition of the duty would benefit the planter, and, to a limited extent, the brewer, as well as the consumer, *Leney* 5447–5450.

The abolition of the duty would doubtless benefit the home-grower, *Richardson* 6336——Unfairness if the Excise duty were as high as the Customs duty, the former being levied on the entire produce, whether required for consumption or not, *ib.* 6348–6355——The abolition of the Excise duty, and the reduction of the Customs duty by a corresponding amount, would be a great relief, *Nash* 7131. 7137–7141——Hop land is not a legitimate subject for taxation, *ib.* 7137–7139——General feeling of brewers, planters, and the public, in favour of the removal of the duty, *ib.* 7155–7164.

Proposition in the draft report of the Chairman of the Committee for the abolition of the Excise duty, *Rep. p.* ix.

4. *Suggested Reduction, by the Abolition of the War Duty:*

In preference to an acreage duty witness advocates the abolition of what is called the war duty, leaving the duty at a penny a pound, *H. Selmes* 1221–1224. 1230–1236. 1258, 1259; *Richardson* 6382——Satisfaction to witness, and to the great majority of the home-growers, if the war duty were abolished and the Customs duty retained at its present amount, *Punnett* 2362–2364; *Kenward* 3178–3181; *J. P. Smith* 4552; *J. Selmes* 5077. 5083–5085——The addition of five per cent. to the duty when the penny post was established should be abolished, *Mannington* 5029–5032——If an acreage duty is not adopted witness would like to see the war duty removed, *Nash* 7131.

5. *Doubt as to the Expediency of Total Abolition:*

The Excise duty is merely so much additional in the cost of production, *Punnett* 2384–2390; *Taylor* 4821–4823——Advantage of the duty in tending to limit the supply and

Report, 1857—*continued.*

Excise Duty—continued.

5. *Doubt as to the Expediency of Total Abolition*—continued.

prevent speculation, *Punnett* 2397-2399. 2413-2415; *Lucas* 3737-3740; *Bannerman* 4296. 4300-4308; *Cutbush* 5317-5324. 5367; *Harryman* 6545-6552——Witness would rather pay the duty than have free trade, *Punnett* 2500-2503; *Carter* 3036-3045; *J. P. Smith* 4504-4507. 4549; *Thirkell* 5213-5226——Witness does not think that the Excise duty has in the long run done any harm, *Kemward* 3176——The Excise duty is no oppression to the planter, and coupled with the Customs duty, is beneficial to him rather than otherwise, *Taylor* 4653. 4711-4723. 4814-4823.

See also *Acreage Duty. Area of Cultivation. Bagging. Beer. Betting. Chancellors of the Exchequer. Defalcations (Payment of Duty). East Kent. Forced Sales. Free Trade. Graduated or Sliding Scale. Loans to Growers. Malt and Malt Duty. Mid Kent. Payment of Duty. Profit or Loss of Hop-growing. Remission of Duty. Small Growers. Sussex. Weald of Kent. Worcestershire.*

Exports. Quantities of hops exported to different countries in 1856, and in some of the preceding years; large export to Australia, *Dobson* 144-148. 319-324——Great demand for hops for exportation; hence the large importation, *Webster* 867, 868——Particulars as to witness having exported some hops by way of experiment in 1855 and 1856, and as to his having failed to sell them; expense incurred in the matter, *Monckton* 2058-2089. 2899. 2100——Witness has sent both English and foreign hops to the colonies; the former are preferred, *Richardson* 4161-4164. 4389-4391——Increasing export of English hops to Australia; they are sent only in limited quantities to the Continent, *Evans* 5847-5852. 5947——Improbability of any large export of English hops in the event of free trade, *ib.* 5853-5867——The export to Australia has increased to 700,000 lbs., *Harryman* 6544.

Allowance to be made in calculating the quantity of exported hops for the quantity of exported beer, *St. John* 7461-7463——Circumstance of English hops having been exported for the sake merely of the drawback, and then thrown away; check exercised by the Customs hereon, *ib.* 7474-7477——Greater export of hops, including exported beer, than import, *ib.* 7478, 7479.

Account of the quantity of hops exported in each of the years 1846-56, distinguishing the countries to which sent, *App. p.* 409, 410.

See also *Bavaria*, 10.

F.

Factors. Practice as to the deduction of weight by the factors, after the hops have been for a certain time in their warehouses, *Webster* 669, 670. 677-681; *T. Smith* 947-957——Statement as to the factor, or intermediate man between the producer and the brewer, getting an extra profit on the score of quality, *Monckton* 2138. 2153, 2154. 2160-2168——Practice generally of planters to sell their hops through factors, *Curteis* 3820-3822——Commission charged by the factors; charge also made for warehousing, *ib.* 3823-3826. 3833, 3834. 4070-4072——Grounds for concluding, that if there were no duty the factors would be done away with, and the profits now obtained by them divided between the producer and the consumer, *ib.* 3851-3856. 3967, 3968. 3991 *et seq.*——Profits made by the factor over and above the charge for commission and warehousing, *ib.* 3856-3862. 4070-4075.

Number of hop factors and merchants in the borough; the factors are, with two exceptions, merchants as well as brokers, *Curteis* 3858, 3859. 3866-3869——Disinclination of factors to buy from planters who have sold direct to brewers, *ib.* 4018-4020——If there were no factors the planters would soon find means of warehousing at home, *ib.* 4024-4028——Remarks on the practice of factors to make a deduction from the planters' weight, though witness has found the weight of his hops to increase after the Excise have weighed them, *ib.* 4064-4069. 4084-4094——The factors are paid by commission, by the cwt., or the pocket, *T. P. Smith* 4610-4613——Consideration of the practice of brewers to buy through factors or merchants; doubt whether it would be more desirable that they should buy directly from the planters, *Leney* 5489-5536.

The business of witness's firm, as factors, is confined to selling for the grower to the merchant on commission; they have scarcely any dealings with brewers, *H. T. Smith* 5538, 5539. 5579, 5580. 5587. 5595, 5596. 5742, 5743——The firm occasionally purchase hops for the supply of their customers, *ib.* 5540-5543——Particulars as to the commission charged per pocket and per bag, *ib.* 5544-5553——It is 3*s.* per pocket when the price is under 3*l.* per cwt., 4*s.* when the price is between 3*l.* and 5*l.*, 5*s.* when the price is between 5*l.* and 8*l.*, and 6*s.* when the price is over 8*l.*, *ib.* 5544——Each factor's business is generally confined to a particular district, *ib.* 5556-5559——Practice of country merchants and brewers generally to buy from the factors in the London market, *ib.* 5573-5578——Short credit between the factor and the merchant, *ib.* 5588, 5589——

It

Report, 1857—*continued.*

Factors—continued.

It would be altogether out of the brewer's line of business to deal directly with the grower, *H. T. Smith*, 5594.

Impracticability of doing without factors if the duties were removed, *Darby* 5605——Impression that the factors would not suffer by free trade *Harryman* 6496.

False Package. Advantage of some distinguishing mark of the seller in the event of false package, *T. Smith* 1188–1196——False packing is not now much resorted to, *Tooth* 1831, 1832——Penalty, under the Packing Act, in the event of false packages; security also in being able to trace the hops, *Punnett* 2928–2931——Reference to an instance of foreign hops being packed in English cloth and sold as English hops; circular sent by the merchants to the brewers with reference to this matter, *Parkes* 7553–7559.

Farnham. About Alton and Farnham there are several large growers of hops, occupying also large farms, *Harris* 3403–3409——Witness, who is a cultivator at Sutton, principally grows white bine hops; quality and price thereof as compared with the Golding hops, *ib.* 3410. 1413–3418. 3426–3432——Comparatively inferior character of the land, *ib.* 3411, 3412. 3435. 3442–3446——Small crops generally grown by witness; exception during the last two years, *ib.* 3425. 3451. 3479——Feeling of witness and the hop growers in his district in favour of free trade rather than of the present duties; they would prefer the retention of the Customs duty and the abolition of the Excise duty, *ib.* 3453–3463——Liability of the white bine hop and of the green bine also to blight, *ib.* 3505, 3506.

Nature of the soil of witness's land at Farnham, *Nichols* 4844——He grows upon it the best white bine hops, which are of the first class quality, *ib.*——Varying value of hop land in witness's neighbourhood; he has been offered as much as 25*l.* an acre on lease for some land close to Farnham, *ib.* 4848–4850. 4860, 4861. 4902–4907. 4913——Heavy rates and taxes upon some of the hop land near Farnham, *ib.* 4853–4857.

The hops of Farnham, Alton, &c. are chiefly sold at Weyhill fair, which is attended by factors or merchants from London, *Nichols* 4890–4896. 4915–4919; *H. T. Smith*, 5585, 5586——Occasional losses by Farnham planters; in 1856 they lost the amount of their rent, *Nichols* 4897–4901. 4940, 4941. 4987——Large crops frequently grown about Farnham, *ib.* 4908–4912——Witness has given more than 500*l.* for an acre of hop land, *ib.* 4913——Some East Kent hops fetch fully as good prices as the best Farnham hops, *ib.* 4939——Diminished cultivation of hops about Farnham for the last year or two; witness and Mr. Paine have grubbed some land, *ib.* 4944. 4964–4967. 4969–4972——Doubt as to average price of Farnham hops at Weyhill fair, *ib.* 4959–4963.

Reference to a meeting of hop planters at Farnham relative to the duties; belief that the majority were in favour of a continuance of the present state of things, *Nichols* 4975–4982. 4989–4991.

Use chiefly of the Farnham hops in the country where grown, *Bass* 7200——Witness has found the East Kent hops very superior to the Farnham hops, *ib.* 7201.

See also *Cost of Cultivation.* *Weyhill Fair.*

Forced Sales. Evidence as to the tendency of the demand upon the grower for the payment of the duty to cause him to sell when the produce is abundant, *Pressly & Dobson* 85–104——Possibility of the producer being forced, when the crop is over abundant, to sell below the cost of production, *Dobson* 275–280. 283–285——Pressure of sales, and consequent lower prices, on account of the necessary payment of the duty, *Reeve* 369, 370. 561–564. 567; *Webster* 691–699. 725–728; *Tooth* 1460–1462. 1595–1609. 1727–1739; *Neve* 2667–2669. 2672–2674——Advantage to the grower if he were not compelled to borrow money or force sales in order to meet the duty, *T. Smith* 1015, 1016——Disadvantage to small capitalists in not being able to hold over their hops when prices are unduly low, *Tooth* 1549–1554——In large crop years the duty has the effect of pressing sales, *H. T. Smith* 5801–5803——Doubt whether the duty in full crop years has any influence upon sales, *Harryman* 6473–6476.——*See* also *Full Crops.*

Foreign Hops. See *American Hops.* *Bavaria.* *Belgium.* *Bohemia.* *Customs Duty.* *Free Trade.* *Imports.* *Marking Hops*, 2. *Profit or Loss of Hop Growing*, 6. *Qualities of Hops.*

Fraud. See *False Package.* *Marking Hops.* *Penalties.* *Re-dried Hops.*

FREE TRADE:

1. *Evidence in favour of Free Trade in Hops.*
2. *Evidence to a contrary Purport.*
3. *Effect of Free Trade on different Classes of Hops.*

1. *Evidence in favour of Free Trade in Hops:*

Belief that if both the Customs duty and the Excise duty were abolished the home grower would be in a better position, and could profitably compete with the foreigner,

Report, 1857—*continued.*

FREE TRADE—continued

1. *Evidence in favour of Free Trade in Hops*—continued.

Webster 711, 712, 739-785. 789. 854-868; *T. Smith* 1017 *et seq.*——Cost of production and facilities for increased production in foreign countries adverted to, *Webster* 758-775. 859-862——If there were no duty Sussex hops might be sold at a profit, at 66*s.* a cwt., *ib.* 772-774——Sussex hops could probably be sold at a profit at 60*s.* a cwt., if there were no duty, *T. Smith* 1028, 1029. 1074. 1107-1110; *Tooth* 1713-1716. 1804.

Belief that in the event of free trade, the Belgian or American hops would not displace the hops of the Wealds of Kent and Sussex; grounds for this conclusion, *Tooth* 1484. 1710-1716. 1738-1766. 1780-1782. 1795-1803——Successful competition abroad of English hops with foreign hops adverted to in support of the conclusion, that free trade would not injure the home grower, *ib.* 1716. 1730-1732. 1734. 1736. 1929——Panic at first, and reduced plantation if there were free trade in hops, *ib.* 1733. 1740-1744. 1928, 1929——Eventually the effect of free trade would be beneficial rather than injurious to the English grower, *ib.* 1740 *et seq.*, 1928, 1929——Unless at very high prices foreign hops cannot be imported profitably, *ib.* 1783-1803——In the event of free trade, witness would not further decrease his plantation, *ib.* 1926.

In the event of free trade, witness does not apprehend any increased import of foreign hops at prices injurious to the home grower, *Neve* 2676 *et seq.*——Absence of injury to the home produce by free trade in corn and other things; inference therefrom in regard to free trade in hops, *ib.* 2701-2706. 2716, 2717——The planters and the brewers would be better off if there were free trade, and the revenue would be the only loser, *ib.* 2720-2725. 2777-2779.

After a few years of free trade there would be but few foreign hops imported, *Curteis* 4063——In the event of free trade, the planters in this country would see the importance of growing hops of better qualities, and would generally be enabled to compete with the foreigner thereby, *Waterman* 6961, 6962. 6976-6978. 6990 *et seq.*——Argument that the principle of free trade is more expedient in the case of hops than of almost any other article, *Bass* 7168.

2. *Evidence to a contrary Purport:*

Objection to the abolition of the Customs and Excise duties; apprehended injurious competition on the part of foreign growers in the event of free trade, *H. Selmes* 1236-1253. 1260, 1261; *Kenward* 3102 *et seq.*, 3175-3177; *Hammond* 3206-3232. 3372-3375; *Harris* 3454-3456. 3464 *et seq.*; *J. P. Smith* 4446 *et seq.*, 4554-4566; *Taylor* 4656, 4657. 4691-4693. 4752-4755; *Thirkell* 5173 *et seq.*; *H. T. Smith* 5798-5800; *Parkes* 7509-7512. 7550.

Increased competition would result in hop-growing in this country being largely given up, as well as in a diminution of prices, *Monckton* 2101, 2102. 2116-2140——Expediency of retaining the Customs duty even if the Excise duty were abolished, inasmuch as there would otherwise be increased and injurious competition in a market already overstocked, *Punnett* 2399-2407. 2412——Witness would prefer keeping the Excise and Customs duty as they are rather than abolish or reduce both, *Punnett* 2500-2503; *Carter* 3036-3045——Free trade would deprive the home grower of that profit in high-priced years, which is his compensation for losses in low-priced years, *Punnett* 2952.

Effect of free trade to drive a large quantity of hop-land out of cultivation, and to curtail employment, *Lucas* 3742. 3802; *T. P. Smith* 4450. 4484; *Taylor* 4658-4660; *Nicholls* 4922-4924. 4942-4945——Worse position of the planters in Sussex, &c. in the event of free trade, *Bannerman* 4334——Witness would rather pay double duty than have free trade, *T. P. Smith* 4504-4507. 4569——Want of unanimity among the Sussex and Weald of Kent planters in regard to the advantage of free trade, *ib.* 4601, 4602. 4616-4619——Witness fully concurs in the evidence of Mr. T. P. Smith in favour of a continuance of the Customs duty, *Taylor* 4648 *et seq.*——Foreign hops have been sold in witness's neighbourhood; their price and quality, *ib.* 4835-4839.

Evidence opposed generally to free trade, *Nichols* 4920 *et seq.*——Impression that foreign hops can be produced more cheaply than English hops, and that free trade would lower prices, *ib.* 4946-4953——Witness would rather pay some duty than have free trade in hops; he disapproves of free trade in corn, *Thirkell* 5213-5226——If the Customs duty be abolished foreign hops will inundate the market, *Cutbush* 5396.

Argument, that to remove the Customs duty on hops, and leave the Excise duty on malt, would be an act of gross injustice to the hop growers, *Darby* 5604 *et seq.*——Decided advantage to the foreigner as compared with the home grower if both the duties were taken off, *ib.* 5605. 5649, 5650——The home grower would lose the advantage represented by the difference between 19*s.* 7*d.* per cwt. and 45*s.* per cwt., *ib.* 5605. 5649.——The above difference is reducible by the advantage to the foreigner on the score of bonding, *ib.* 5650——Data for the conclusion that in the event of free trade, hops grown in America, Bavaria, and Belgium will successfully compete with English hops, and will be fatal to the hop trade of this country, *ib.* 5627-5534. 5649-5651. 5685-5705. 5717-5721.

Report, 1857—*continued.*

Free Trade—continued.

2. *Evidence to a contrary Purport*—continued.

5721. 5739-5741——Remarks relative to the effect upon the home trade of the abolition of the duties upon wool and corn, *Darby* 5686-5693.

Uncertain, but very reduced prices, if there were free trade, *Evans* 5843-5846——Free trade would benefit the foreigner only, *ib.* 5860-5862——The abolition of the duty would not benefit either the planter or the brewer, inasmuch as the consumer pays the duty, *Harryman* 6481 *et seq.*——Inexpediency of foreign competition with a view to supplying the demand in years of extreme scarcity, *ib.* 6489, 6490——Out of 724 growers for whom witness has sold hops within the last two years not one-tenth are in favour of an alteration in the duties, *ib.* 6492. 6555.

Proposition in draft report of Mr. Knight as to the evil to be inflicted by an abolition or equalisation of the Customs and Excise duties, *Rep. p.* x——The same agreed to, *ib.* xvii.

3. *Effect of Free Trade on different Classes of Hops:*

How far free trade would affect any one class of home-grown hops more than another, *Monckton* 2122, 2123. 2127-2140——Free trade would prevent Sussex hops from being grown profitably, and witness and other planters would at once grub their plantations, *Darby* 5627 *et seq.*——Evidence to the effect that the growers of the better class of hops, and not the growers of Sussex and Weald of Kent hops, would suffer by free trade and an increased importation of Bavarian hops, *Waterman* 6990 *et seq.*——Opinion that the Weald of Kent and Sussex hops would not be more affected than the better hops by free trade, *Nash* 7158, 7159. 7163.

The Weald of Kent and Sussex must inevitably go out of cultivation in the event of free trade with Bavaria and Belgium, *Lucas* 7271. 7287, 7288. 7403-7405——Doubt whether the Sussex and Weald of Kent growers would be at all injured by free trade, *Bass* 7168——Prejudice to the planters in East and Mid Kent in the event of free trade; they can afford some depreciation in price, *ib.*——The inferior hops would be the first to suffer, *Parkes* 7512.

See also *American Hops.* *Bavaria.* *Beer.* *Belgium.* *Customs Duty.* *East Kent.* *Excise Duty.* *Farnham.* *Gradual Reduction of Duties.* *Mid-Kent.* *Prices.* *Sussex.* *Underwood.* *Worcestershire.*

Fuel. Way in which the abolition of the Customs duty would be injurious as regards the wood fuel used by the poor in Sussex, *Darby* 5626.

Full Crops. The price of hops is lowest and the duty heaviest when there is an abundant crop, *Reeve* 354-361——Statement as to full crops being unprofitable to the grower; how far the heavier duty on such crops may account for this, *ib.* 369, 370. 442-451. 462 *et seq.* 551-553. 561-564——Curtailment of labour and consequent distress after there has been a full crop, *ib.* 373-378. 382-395. 439-441.

In abundant years the producer pays the duty out of his own pocket, without recovering it in the price, *Webster* 693-699. 779-784; *Tooth* 1463-1465. 1608. 1906-1911; *Punnett* 2377-2386. 2395, 2396. 2507; *Neve* 2670, 2671; *Curteis* 3969-3975; *Thirkell* 5238.

Greater demands for accommodation on witness's bank on the part of hop growers, and greater distress throughout the district, in years when there have been full crops and large amounts of duty to meet, than in years of small or average crops, *T. Smith* 907 *et seq.* 1054-1057. 1122-1127——Less consumption of duty-paying articles in years when the hop crop has been abundant, and the heavy duty has caused distress, *ib.* 929-934——The fact of the heavy duty having been so well met for the last two years is attributable to the good prices obtained by the farmer for his other crops, *ib.* 938——In 1848 the duty on Sussex hops amounted to fifty per cent. on the value, *ib.* 1058-1060.

Calculation that in the years 1855 and 1856 a portion of the planters lost from 500,000 *l.* to 600,000 *l.*, *Tooth* 1465-1477. 1613-1631. 1703-1709. 1716. 1806-1812——Witness lost by his hops in 1854 and 1855, but most in 1855, *ib.* 1553-1559——In abundant years the Excise duty is a loss, whilst the Customs duty is a protection, *ib.* 1708 *et seq.*——Question as to there having been a loss on the aggregate produce of 1855 and 1856, *ib.* 1804-1810.

Oppression of the Excise duty when there are abundant crops and low prices, as in the last two years, *Punnett* 2330-2335. 2359-2361. 2377-2386. 2504-2507; *Hammond* 3130. 3205, 3206. 3217. 3234. 3315. 3355-3359. 3376-3378; *Mannington* 4999-5003; *Bannerman* 5150-5154. 5241-5247——Without reference to the duty, an abundant crop is injurious, but the duty makes it still worse, *Neve* 2693-2700. 2816, 2817——If there were no Excise duty, the planter would lose so much less in abundant years, *Punnett* 2953, 2954——Disadvantage of a series of full crops; more especially when there is not capital to fall back upon, *Lucas* 3765-3784——Better position of the labourers and shopkeepers when there are abundant crops, *Darby* 5652——Loss to the grower by the abundant crops in 1855 and 1856, *Richardson* 6339, 6340.

See also *Forced Sales.* *Un-picked Hops.*

G.

Germany. The hops imported from Germany are principally those from Bavaria, *Richardson* 6167——In North Germany a good many hops are grown; in West Germany the cultivation is dying out, *ib.* 6301——Statement of the acreage under cultivation in the several German districts besides Bavaria, and of the average produce per acre; data for this statement, *Whitling* 6687-6693.——*See* also *Bavaria.*

Golding Hop. Difficulty in growing the Golding hop in Sussex, *Webster* 668. 673-676——Golding hops are better grown in Kent than in Sussex, and fetch a higher price, *T. Smith* 1168-1178——Deterioration of late years in the Golding hops from over produce, *Tooth* 1518, 1519; *Punnett* 2320-2329; *J. P. Smith* 4554, 4555; *Richardson* 6315-6320——Less growth per acre of the Golding in East Kent than in Mid Kent, *Tooth* 1521-1523——The Golding hops of East and Mid Kent are worth fifty per cent. more than the Grape hops grown in the Weald of Kent and Sussex, *ib.* 1699-1702. 1724-1726.

Liability of the Golding hop to blight or mould, *Punnett* 2310. 2319. 2322——Impression that less Golding hops are grown now than formerly, *Hammond* 3369-3371——Belief that if there were free trade, Sussex would grow the Golding hop as well as Kent; grounds for this conclusion, *Curteis* 3891-3914——The best Kent hops are most likely to suffer by competition, *ib.* 3917, 3944, 3945——Witness cultivates about as many Goldings as he did when he commenced growing about nine years ago; he grows more Jones's and fewer Grapes, *Bannerman* 4158-4167——Peculiar soil required for the Golding hop, *Thirkell* 5250-5253——Witness grows principally the Golding hop, for which Teston parish has a high reputation, *Cutbush* 5314. 5331. 5341, 5342——Witness has found the East Kent hops very superior to the Farnham hops, *Bass* 7201.

See also *East Kent.* *Qualities of Hops.*

Gradual Reduction of Duties. If the duties are to be abolished, they should be reduced gradually over a series of years, *Carter* 3035.

Graduated or Sliding Scale. Approval of a graduated Excise duty, the amount per pound being increased according as the crop is diminished, so that in the aggregate nearly the same amount may be always paid, *Punnett* 2365-2375——Further evidence in support of the proposition for a graduated duty on home-grown hops; scale proposed, and explanation thereon, *ib.* 2910-2923——Under witness's plan 170,000 *l.* of old duty would on an average be paid, *ib.* 2913.

Proposition that there be a graduated or sliding-scale of duty, the amount per hundredweight to be raised or lowered according as the crop is small or large; scale proposed, *Hammond* 3233 *et seq.*——Amount which the Government would receive under the proposed sliding-scale; much greater uniformity than at present, though probably the average amount might be less by twenty or twenty-five per cent., *ib.* 3235-3244. 3353, 3354——When there are short crops, the revenue would be increased by the Customs duty; but witness does not propose that such duty should be regulated by a sliding-scale, *ib.* 3235. 3240-3243. 3253-3268——Action of the proposed scale upon the price, *ib.* 3235——Doubt as to the effect of the proposed duty upon the import of foreign hops, *ib.* 3255-3266.

Witness's scheme does not profess to remove the inequalities of the position of the Mid-Kent growers and of the growers of the Weald of Kent and Sussex; but it would be a great relief to the planters generally, *Hammond* 3272-3283. 3290-3292. 3331-3337——Support given to witness's scheme by planters in Kent and Sussex, many of whom were previously in favour of free trade, *ib.* 3284-3289. 3322, 3323. 3337-3341——Under witness's plan the growers would know beforehand very nearly the amount which they would have to pay, *ib.* 3297-3307——Improbability of an occasional reduction of the Customs duty under the operation of the plan, *ib.* 3309-3311——Tendency of the plan to cause a larger growth, and thus to improve the quality of beer, *ib.* 3314-3321. 3368.

Witness has calculated that his former plan of graduated duty would entail an average loss of fifty per cent. to the revenue, and now proposes a modified plan which would entail a loss of only twenty-four per cent.; particulars in explanation of the scale now proposed, and its operation under different circumstances, *Hammond* 4336-4346——The maximum in the scale is 27 *s.* per cwt. and the minimum 6 *s.*, *ib.* 4345, 4346.

If there be any alteration of the Excise duty, witness would prefer a graduated scale which should make the amount per hundredweight less as the produce is more, and vice versâ, *Lucas* 3793——A graduated scale of duty would create much trouble and inconvenience, *J. P. Smith* 4508, 4509——Approval of a graduated duty; that is, if the Excise duty be altered at all, *Cutbush* 5396-5404——Although witness expresses some objection to a graduated duty, he is not, on the whole, unfavourable to it, *Darby* 5726.

Grape Hop. Less price of the Sussex Grape hop than of the Weald of Kent Grape hop, though the latter may be no better, *Webster* 852, 853.——*See* also *Qualities of Hops.*

Report, 1857—*continued.*

H.

Hammond, George. (Analysis of his Evidence.)—Hop-grower and land agent at St. Mary Cray, Mid Kent; grew hops for many years at Horsmonden in the Weald of Kent, 3182–3189. 3397, 3398——Statement as to the great oppression of the Excise duty when there are abundant crops, as in the last two years, 3190. 3205, 3206. 3217. 3234. 3315——The pressure of the duty is chiefly felt by the growers in the Wealds of Kent and Sussex who have not much capital to fall back upon, 3191, 3192——Less produce and higher price and profit, in the case of the Mid Kent hops, than of those of the Wealds of Kent and Sussex, 3193–3202. 3274–3279.

Witness would prefer free trade to the present state of things, 3203–3206. 3216, 3217——Apprehension, however, of injurious foreign competition in the event of free trade; price and qualityof foreign hops adverted to hereon, 3206–3232. 3372–3375——Proposition that there be a graduated or sliding scale of duty, the amount per cwt. to be raised or lowered according as the crop is small or large; scale proposed, 3233 *et seq.*

Amount which the Government would receive under the proposed sliding scale; much greater uniformity than at present, though probably the average amount might be less by twenty or twenty-five per cent., 3235–3244. 3353, 3354——When there are short crops, the revenue would be increased by the Customs duty, but witness does not propose that such duty should be regulated by a sliding scale, 3235. 3240–3243. 3253–3268——Action of the proposed scale of duty upon the price, 3235.

Much greater outlay on manual labour in the case of hops than of other agricultural produce, 3245–3250——Doubt as to the effect of the proposed graduated duty upon the import of foreign hops, 3255–3266——Witness's scheme does not profess to remove the inequalities of the position of the Mid Kent growers, and of the growers of the Wealds of Kent and Sussex, but it would be a great relief to the planters generally, 3272–3283. 3290–3292. 3331–3337.

Support given to witness's scheme by planters in Kent and Sussex, many of whom were previously in favour of free trade, 3284–3289. 3322, 3323. 3337–3341——Remarks relative to the views expressed by Mr. Selmes in regard to a 6 *l.* 10 *s.* acreage duty, 3287. 3293–3296——Under witness's plan the growers would know beforehand very nearly the amount which they would have to pay, 3297–3307——The duty should all be paid within three months after its declaration, 3307, 3308. 3342. 3344.

Improbability of an occasional reduction of the Customs duty under the operation of witness's plan, 3309–3311——Reduced prices are not likely to cause any reduction in the price of beer, 3312, 3313——Tendency of witness's plan to cause a larger growth, and thus to improve the quality of beer, 3314–3321. 3368——Impracticability of an ad valorem duty, 3324——Similarity between witness's scheme and an ad valorem duty, 3325–3328——Difficulty at present of prompt payment of the duty when there is an abundant crop; suggestion hereon, 3343–3350——Practice of local bankers, and of the factors, to advance money for the payment of the duty, 3346. 3351, 3352.

Moderate crops are most beneficial to the planter, full crops being, under the present system of duty, very injurious, 3355–3359. 3376–3378——An aggregate duty of 150,000 *l.* would now represent a favourable crop; excess of supply when the duty exceeds that amount, 3357–3368——Impression that less Golding hops are grown now than formerly, 3369–3371——Advantage of the security afforded by the system of marking the hops, 3379–3387.

Detailed statement, showing a total of 22 *l.* 6 *s.* 6 *d.* as the average cost of cultivation per acre in Mid Kent, 3388–3392. 3394——Mr. Carter's estimate of 36 *l.*, as the acreage cost of cultivation, is much too high, 3389, 3390——Detailed statement, showing a total of 2 *l.* 4 *s.* as the cost per cwt. of picking, drying, duty, &c., 3393, 3394——Greater expense of cultivation in Sussex than in Mid Kent or in the Weald of Kent, 3395, 3396.

[Second Examination.]—Witness has calculated that his former plan of graduated duty would entail an average loss of fifty per cent. to the revenue, and now proposes a modified plan, which would entail a loss of only twenty-four per cent.; particulars in explanation of the scale now proposed, and of its operation under different circumstances, 4336–4346.

Hampshire. One thousand nine hundred and forty-nine acres of hop land are grown in Hampshire, *Pressly* 34——Number of planters in the Hants collection in each of the years 1847–56, *App. p.* 407.

See also *Farnham.* *Profit or Loss of Hop-growing*, 3.

Hanse Towns. See *Bavaria.*

Harris, James. (Analysis of his Evidence.)—Hop grower at Sutton, near Farnham; cultivates about a dozen acres of hops out of a farm of 520 acres, 3399–3402. 3406, 3407——About Alton and Farnham there are several large growers of hops, occupying also large farms, 3403–3409——Witness principally grows white bine hops; quality and price thereof, as compared with the Golding hops, 3410. 3413–3418. 3426–3432——

Report, 1857—*continued.*

Harris, James. (Analysis of his Evidence)—*continued.*

Comparatively inferior character of the hop land cultivated by witness, 3411, 3412. 3435. 3442–3446——The cost of cultivation per acre, in witness's neighbourhood, is from 22 *l.* to 25 *l.*, 3421.——The picking, drying, and duty come to from 40 *s.* to 50 *s.* a hundredweight, 3422–3424.

Small crops generally grown by witness; exception during the last two years, 3425. 3451. 3479——Rent of hop land and other land in witness's neighbourhood, 3433–3436——The extraordinary tithe is 10 *s.* in some parishes, and 13 *s.* 4 *d.* in others, 3437, 3438——Witness has not found hop-growing profitable, but he has not grown such good hops as his neighbours generally, 3439–3451——Impracticability of profit at the price of 60 *s.* or 70 *s.* per cwt., 3452.

Feeling of witness and of the hop growers in his district in favour of free trade rather than of the present duties; they would prefer the retention of the Customs duty and the abolition of the Excise duty, 3453–3463——Apprehension of injurious competition on the part of foreign growers in the event of free trade, 3454–3456. 3464 *et seq.*——If the duties were abolished, Hampshire hops might be sold at a profit at 60 *s.* a cwt.; question whether the foreigner can sell at that price, 3470–3501——Under the present system a moderate crop is far better than a large crop, 3502–3504——Liability of the white bine hop and of the green bine to blight, 3505, 3506.

Harryman, William. (Analysis of his Evidence.)—Hop factor in the Borough; does business for the planters in most of the hop districts, 6400–6402——Attends Weyhill fair, and sells for the planter to the merchant, 6403, 6404——Practice of the planter to borrow money from the factor equally or more in high-priced years than in low-priced years; the practice generally is much exaggerated, 6406, 6407. 6458–6472——Advantage to the grower if the whole of the duty were made payable on the 1st March, 6408–6417. 6456, 6457. 6531–6535.

Doubt as to the accuracy of the tables of prices published in the Borough; belief that the average of 15 *l.* 19 *s.*, as the price in 1854, is much too high, 6418–6431. 6516–6518——Reference to witness's sale book as affording a good test of the prices, 6418–6421. 6432, 6433——The price more frequently falls than rises after Christmas, but not so often as in three years out of four, 6426–6429——Reference to a certain paper professing to give the average price in each of the years 1847–54; 6434–6444.

Witness rarely deals in foreign hops, 6445, 6446——The Worcestershire and Herefordshire hops are not often sent to witness or other London factors for sale, 6447–6449——The local trade and prices at Worcester, &c., are governed by the London trade, 6450, 6451——The best hops of Worcestershire and Herefordshire are not equal to the best Kentish hops, but are superior to the hops chiefly grown in the Wealds of Kent and Sussex, 6452–6455.

Advantage of the earlier publication of the returns relative to the duty, 6456——The great majority of the planters are decidedly men of capital, 6459–6463——Larger proportion of the produce sold in the first four months after picking in full-crop years than in short-crop years, 6469–6472——Doubt whether the heavy duty in full-crop years has any influence upon sales, 6473–6476——Short-crop years are advantageous to those who grow crops in those years, but in some cases there is a total blight, 6477–6479.

Opinion that, on the whole, hop-growing is a profitable business, 6480. 6488, 6489——Belief that the abolition of the duty would not benefit either the planter or the brewer, inasmuch as the consumer pays the duty, 6481 *et seq.*——The duty is now almost inappreciable as regards the consumer, and its removal would not benefit him, except slightly on the score of quality, 6482, 6483. 6494, 6495. 6523–6527——Practice of some brewers to buy for cash and some for credit, 6484–6486——The brewers have not much to complain of in regard to the prices paid by them for many years past, 6487. 6499.

Inexpediency of foreign competition with a view to supplying the demand in years of extreme scarcity, 6489, 6490——Out of 724 growers, for whom witness has sold hops within the last two years, not one-tenth are in favour of an alteration in the duties, 6492. 6555——Impression that the factors would not suffer by free trade, 6496——Protection by the Excise duty to the merchant as well as the brewer, as regards the quality of the hops, 6497, 6498——Competition between brewers to produce good beer, 6500–6505.

Doubt as to the high price of hops in 1854 or 1840 having at all materially affected the consumption or price of malt, 6506–6522. 6561–6568——Effect of the malt duty in restricting the consumption of hops, 6511–6513——Witness attributes the distress among the planters in Sussex and the Weald of Kent to the system of long credit, and the unduly large plantations which they have been tempted to grow, and not to the burden of the duty, 6531–6560.

Hartridge, James. (Analysis of his Evidence.)—Cultivates about 70 acres of hop ground at Yalding and Horsemonden, in the Weald of Kent, 3507–3511——Character of the soil of the hop land in this district, 3512, 3513——Witness proposes a 3 *l.* acreage duty

as

Report, 1857—*continued.*

Hartridge, James. (Analysis of his Evidence)—*continued.*

as the best scheme for relieving the hop growers, and for rendering less oppressive the inequalities of the present system, 3514-3516. 3530-3556. 3632-3670——Loss of about one-half of the present amount of duty if a 3 *l.* acreage duty were adopted, 3517-3519.

Witness would prefer a 6 *l.* 10 *s.* acreage duty to the present system, but would rather have free trade than so heavy a duty, 3520-3524——Large amount paid in extraordinary tithe adverted to, as sufficient of itself to call for some Customs duty as a counterbalance, 3523. 3525-3529——How far there would be inequality under an acreage system, 3530 *et seq.* 3634-3636. 3643-3676——Much higher duty than 3 *l.* per acre paid by witness and by growers in Kent and Sussex under the present system, 3542-3565.

Particulars as to the losses and gains of witness in hop growing for the last ten years, it has been a losing business rather than otherwise, 3566 *et seq.*——How far witness's statement as to the unprofitable character of his hop grounds may represent the case of hop growers generally, 3599-3631——Approval by the hop growers and landowners in witness's neighbourhood of a 3 *l.* acreage duty, 3632, 3633. 3637-3642——Calculation that the Excise duty now amounts to 19 *s.* 7 *d.* per cwt., 3676-3685.

Herefordshire. In the Herefordshire collection, which amounts to 4,602 acres, the average of the duty per acre is only 1 *l.* 3 *s.* 10 *d.*, *Pressly* 230.

Profitable character of hop growing in Herefordshire for the last ten years; witness has found hops more profitable than any other crop, *Taylor* 4661-4672. 4675-4685. 4696-4710. 4737-4739——Facilities for extended cultivation in Herefordshire if the land in Sussex were grubbed; *ib.* 4673-4675——General distress in Hereford in 1848 and 1849, which led the planters to seek for the non-exaction of the duty, *ib.* 4676-4684. 4698-4710——Witness is fully satisfied with the present amount and mode of collection of the duty; a similar feeling is general among the Herefordshire planters, *ib.* 4686-4690. 4697. 4750-4756.

The rent of witness's hop land is from 1 *l.* to 1 *l.* 10 *s.* an acre, *Taylor* 4694. 4771. 4774——Average produce of from ten to twelve hundredweight per acre, *ib.* 4695——Doubt whether there has been any diminution of late years in the area of hop land in Herefordshire, *ib.* 4724, 4725——In 1854, and also in 1855, witness grew a large crop of hops per acre, but in 1856 his produce and that of many of his neighbours was affected by a blight, *ib.* 4726-4736——Doubt whether hop-growing in Herefordshire can be profitable, if the average produce be only four and a half hundredweight per acre, *ib.* 4744-4749.

Practice in Herefordshire to sell the hops to merchants at the Worcester and Hereford markets; difficulty experienced by witness in an attempt to sell some hops through a broker in the borough, *Taylor* 4757-4770. 4784-4804. 4830-4834——Character of the soil of witness's land, *ib.* 4775——Different kinds of hops grown in Herefordshire; there are no Goldings, and but few Colegates, *ib.* 4776-4778. 4825-4829——Hops in Hereford are now rarely planted among young trees or in orchards, *ib.* 4779-4782.

Number of planters in each of the years 1847-56. *App. p.* 407.

See also *Cost of Cultivation.* *Profit or Loss of Hop-growing*, 4.

Hersbruck Hops. See *Bavaria.*

Hodges, Thomas Law (the late). Mention of the late Mr. T. L. Hodges as having first suggested a 3 *l.* acreage duty, *Monckton* 2193-2196.

Holding Over. In holding over his hops, the grower does not necessarily speculate, *T. Smith* 945——Large portions of the year's crop are often held over till Christmas, *ib.* 958-961——If there were no duty, it would be easier for the producer to hold, *Curteis* 3849-3851. 3863——Those alone, who have capital, avoid loss by selling in abundant years, *ib.* 4109, 4110——Advantage of capitalists in being able to hold over their crops from abundant years, *Mannington* 5012-5014——Depreciation in weight and quality by holding over for any length of time, *ib.* 5015-5026——Witness rarely holds his hops; he always sells when they are anything like a good price at Roberts Bridge Fair, *Darby* 5646——Belief that more money is lost than made by holding hops, *ib.* 5652.

See also *Capital of Hop Growers.* *Deterioration.*

Holetau Hops. See *Bavaria.*

Holland. Quantity of hops imported from Holland in each of the years 1846-56, *App. p.* 409.

Hop Assistants. Business of the hop assistants, of whom there are from 260 to 270, *Pressly* 13——Statement of the number employed in each collection, *App. p.* 412.

Report, 1857—*continued.*

I.

Imports. Amount of the importation of foreign hops in each of the years 1846–1856, *Dobson* 25–27. 31——Great increase in the imports since the reduction in 1845 of the Customs duty, *Punnett* 2508——Extent of foreign imports in the years 1840–1845, *Darby* 5644, 5645——In the years March 1856 and March 1857, there were imported respectively 21,780 cwt. and 11,262 cwt. of hops, *H. T. Smith* 5757–5759.

Reference to a return (*App. p.* 408), showing the quantities of foreign hops imported from certain countries in each of the years 1847–56; also the rates of duty per cwt., *St. John* 7454–7456——Return (*App. p.* 408), showing the quantities imported and exported, in each of the years 1837–56; also the declared value of the beer exported, *ib.* 7457, 7458——The amount of tare allowed upon imports varies very much, *ib.* 7468——Account showing the imports in each year from 1800, *App. p.* 411.

See also *American Hops. Bavaria. Belgium. Customs Duty. Free Trade.*

Inland Revenue, Board of. See *Collection of Duty.*

J.

Jones's Hop. Better character of the Jones's hops grown in East Kent than of those grown in the Weald of Kent, *Tooth* 1664–1672.

See also *Qualities of Hops.*

K.

Kent. See *East Kent. Mid Kent. Weald of Kent.*

Kenward, John. (Analysis of his Evidence.)—Hop grower at Uckfield and Little Horstead, in the Weald of Sussex, 3080–3082——The cost of cultivation in witness's neighbourhood varies from 21 *l.* to 25 *l.* per acre, 3083, 3084——The cost of picking, drying, and the duty, amounts to about 35 *s.* per cwt., 3085–3091——Low price of Sussex hops in 1855 and 1856, 3092, 3093——Sussex hops may be grown at a profit, at about 4 *l.* 4 *s.* per cwt., 3094, 3095——Hop growing in Sussex is at times a losing business with many, but witness has been a lucky grower, 3096–3101. 3133–3143.

Objection to the abolition of the Customs and Excise duties; apprehended injurious competition on the part of foreign growers in the event of free trade, 3102 *et seq.* 3175–3177——Injury to the home growers by the reduction of the Customs duty in 1854; 3116–3124——Improbability of the Customs duty being again lowered because of a short crop in this country, 3125, 3126. 3129–3132——Reference to the large sums lost every year in betting about the Excise duty; advantage of the practice so far as it affords a criterion of the amount of the crop, 3152–3174——Witness recommends that the war duty be abolished and the Customs duty retained at its present amount, 3178–3181.

Knight, Mr., M. P. Draft report proposed by Mr. Knight; the same considered, *App. p.* ix *et seq.*

L.

Labour. See *Employment.*

Landlords. Willingness of the landlords in Kent to encourage the growth of hops; the growth is compulsory in some cases, *Neve* 2621–2623.

Leney, Charles. (Analysis of his Evidence.)—Cultivates about 130 acres of hop land at Wateringbury, near Maidstone, 5422–5427——Has found hop-growing profitable, 5428. 5437——Grows principally the Golding hop, 5429——Calculates the cost of cultivation at 30 *l.* per acre, 5430, 5431——The picking, drying, and duty, average about 40 *s.* per cwt., 5432, 5433 — The rent of witness's land, which is on the Ragstone Hills, is about 3 *l.* an acre, 5434–5436.

Witness is strongly in favour of the continuance of the Customs duty, though involving the continuance also of the Excise duty, 5438–5442——He would like to see the Excise duty removed and the Customs duty retained, 5439–5441——Lower prices would not be so much to the interest of witness, who is a brewer, as to other brewers who buy all their hops, 5443–5445——At present the consumer pays the duty, 5446——The abolition of the Excise duty would benefit the planter, and to a limited extent the brewer, as well as the consumer, 5447–5450.

The

Report, 1857—*continued.*

Leney, Charles. (Analysis of his Evidence)—*continued.*

The existing complaint is mainly owing to the long credit given for the payment of the duty, 5451, 5452. 5463——Suggestion that the present half year's duty be given to the planters, 5451——Importance of shorter credit; beneficial check thereby to speculation without proper capital, 5452-5473——Effect of high and low prices upon the brewer; greater profit when prices are low, 5474-5488——Consideration of the practice of brewers to buy through factors or merchants; doubt whether it would be more desirable that they should buy directly from the planters, 5489-5536.

Live Stock. Pressure of sales of live stock in order to meet the Excise duty on hops, *T. Smith* 1122-1125——How far the necessary payment of the duty may have had an effect as regards the fewer cattle reared of late years, *ib.* 1128-1131——Doubt as to the cattle fairs being injuriously affected at the time of the payment of the hop duty, *H. Selmes* 1288, 1289.

Loans to Growers. Occasional mortgage of crops in order to raise money for the Excise duty, when heavy. *Reeve* 382-384. 500-502——After the hops have been sent to the factors, accommodation before sale is received from them rather than from local banks, *T. Smith* 943, 944——Practice formerly of the country merchants, and more recently of the London factors, to advance money to the growers towards the payment of the duty, *Tooth* 1882-1892. 1900-1905——Danger of increased loss from the power of borrowing from the factors in order to hold over for better prices, *ib.* 1912-1916——Practice of local bankers and of the factors to advance money for the payment of the duty, *Hammond* 3346. 3351, 3352.

Frequent instances of Sussex planters mortgaging their crops to the factors, in order to raise money to meet the duty, *Curteis* 3837-3839. 3864, 3865. 3870-3876——In the event of the abolition of the duty there would not be the same necessity for the planter to mortgage his crop to the factor or brewer, *ib.* 4029-4046. 4060-4062——Occasional applications from the growers to the factors for loans previous to the payment of the duty, more especially in abundant years, *H. T. Smith* 5590-5593——Practice in other trades, as well as the hop trade, for the factors to make advances to those consigning their goods to them, *Darby* 5605. 5653.

Practice of the planter to borrow money from the factor equally or more in the high priced years than in low-priced years; the practice generally is much exaggerated, *Harryman* 6406, 6407. 6458-6472.

Lucas, Samuel Lancaster. (Analysis of his Evidence.)—Owns a considerable quantity of hop land at Wateringbury, near Maidstone; does not now occupy any of it himself, and has not grown hops since 1845; 3686-3690——Belief that hop-growing in Mid Kent and the Weald of Kent is on an average of years decidedly profitable to men of capital, 3691. 3725-3727. 3745. 3750. 3764, 3765——A man entering on a farm should have 125 *l.* of capital to each acre of hops, 3692, 3693. 3753——The cultivation in witness's district costs from 25 *l.* to 30 *l.* an acre, 3694——The picking, drying, and duty costs from 40 *s.* to 50 *s.* per cwt., 3695, 3696.

Outlay of from 20 *l.* to 30 *l.* an acre required in the erection of oast houses, &c., 3697——Size of the farms about Maidstone, and proportion of hop ground on each farm, 3698-3700——A farm would not let at all if some portion of it were not hop land, 3701, 3702——Large population in witness's district, whom it would be impossible to employ if hop-growing were to cease, 3703-3711. 3740, 3741——Ruinous result in the district if the hop lands were to go out of cultivation, 3706. 3795——Great loss on the score of buildings if hop cultivation were to be abandoned, 3707——Injurious effect upon the value of wood land if there were any large diminution of hop cultivation, 3711-3724.

Benefit of the Excise duty to men of capital, 3725-3727. 3736-3740. 3749. 3755. 3764——Increased plantation without proper capital adverted to as the cause of distress in Mid Kent in 1848 and 1849; 3728-3731——Disadvantage in collecting a moiety of the duty in November; it should all be collected in March, after the crop; 3732-3735. 3787-3792——Tendency of the Excise duty to check an undue extension of hop planting, 3737-3740——Effect of free trade to lower the value of good hop land, and to throw out of cultivation much of the inferior land, 3742. 3802.

Dissent from the opinion that hop-growing in the aggregate is a losing business, 3743, 3744——With a proper outlay of capital and proper soil there is no reason why hop-growing should not be as profitable in Sussex or the Weald of Kent as in Mid Kent, 3745. 3750-3754. 3775, 3776. 3784, 3785——Facility for extended cultivation in Kent if the hop land in Sussex were grubbed, 3746, 3747——Conclusion that the consumer pays the duty in the quality of the beer; very slight effect of the duty hereon as regards individuals, 3756-3763.

So long as there is sufficient capital, a small plantation will answer as well as a large one, 3764——Disadvantage of a series of full crops, more especially where there is not capital to fall back upon, 3765-3784——Partial extent to which witness considers that the Excise duty has aggravated distress, 3766-3785——In the great majority of cases

Lucas, Samuel Lancaster. (Analysis of his Evidence)—*continued.*

the crop is sold long before the duty is paid, 3777——It would be politic in Government to give up one half year's duty, and for the future to require it all to be paid in March, 3787–3791.

If there be any alteration of the Excise duty, witness would prefer a graduated scale which should make the amount per hundredweight less as the produce is more, and vice versâ, 3793——Strong disapproval of an acreage duty, *ib.*——Loss if there were any large increase in the cultivation and supply, 3794——Injury to the population if there were reductions or fluctuations in the extent under cultivation, 3795-3801——Free trade would be better than an acreage duty, 3802——Slight extent to which free trade would benefit the consumer, 3803–3808——Increased cultivation after periods of high prices, 3809.

[Second Examination.]—Statement of the average cost of production respectively in Spalt city and Spalt country, in which districts of Bavaria the finest hops are grown, 7204. 7209-7213——Doubt as to the acreage of hops in Bavaria, 7206——Witness has recently travelled through the country, and has obtained from growers and others the information which he now lays before the Committee; he took various opinions, and gives the average of those opinions, 7207, 7208. 7211-7213. 7247-7249. 7256–7258——There are no Government statistics, 7209.

Statement of the cost of cultivation in Hersbruck city and Hersbruck district, where the produce per acre is large and the hops are of an inferior kind, 7213-7216——Particulars of the cost of cultivation in the Aischgrund district, 7217, 7218. 7222——Particulars of the cost in the Holetau district, near the Danube, 7219. 7223——Explanation that witness has not visited Holetau since 1852, but that the information now supplied has been recently procured from persons living there, and is quite reliable, 7220–7222.

Particulars of the expenses upon a hundredweight (English) of Bavarian hops from the time of sale to the merchant to its delivery to a bonded warehouse in London; total of 1 *l.* 4 *s.* 7 *d.*, 7224-7226. 7331, 7332——There are about 26,400 English acres of hop land in Bavaria, 7226*——The annual produce averages 167,000 cwt., 7226*. 7256——About 45,000 cwt. are consumed, 7226*. 7255——The production in Bohemia is about 67,500 cwt.; 7226*——From Bavaria and Bohemia from 30,000 to 40,000 cwt. may readily be sent to England, *ib.*

Varying price of hop land in Bavaria, 7226*——Facilities for largely extending the cultivation, 7226*. 7255. 7306-7319——One-third of the whole produce is grown in the Holetau district at a cost of about 1 *l.* 10 *s.* per cwt.; 7226*——Higher cost per hundredweight in other districts, *ib.*——Explanation of the system of cultivation in Spalt and other districts, *ib.*——Anticipated great increase in the growth of Holetau hops; they are equal to our best hops, and can be delivered in London, at a good profit, with the duty paid, for 6 *l.* per cwt., *ib.*

System of optional marking in Bavaria; heavy penalties for frauds, 7226*——Evidence given to witness by Mr. Charles Zeltner, a brewer and hop grower at Hersbruck, 7226*, 7227——Evidence given by Mr. Frederick Loos, a grower at Hersbruck, 7227-7229——Information given to witness by members of the firm of M. Uhleman of Furth, near Nuremberg; respectability of this house, 7229-7233——Information given by Dr. Morgenstein, formerly a Member of the Chamber of Deputies, relative to the malt duty, &c.; 7233——Nature of the information given by M. Moritz Uhleman, of Hamburg, about the Bohemian hops, 7233, 7234——Mr. Parkes, a hop-factor in the Borough, accompanied witness, 7234.

Further evidence relative to the Holetau district and its capabilities for successful competition with this country; explanation as to this district not having superseded the growth of hops in Hersbruck and other districts where the hops are much dearer and no better, if so good, in quality, 7234 *et seq.*; 7264-7270. 7274 *et seq.*——Unduly high profits of the growers and merchants in Bavaria, 7240. 7242. 7245. 7321-7328——The brewers did not seem to know much about the cost of production, 7242. 7246——The Bavarian grower gets a better profit than the English, and the Belgian better than the Bavarian, 7245. 7369.

Sundry memoranda, as made by witness, relative to the Spalt country, its mode of cultivation, system of poling, &c., 7249-7255——Memoranda relative to the Hersbruck district, 7255——Memoranda relative to the Aischgrund district, *ib.*——Much less variation in the cost of production in Bavaria than in England, 7258–7262.

Belief that, in the event of free trade, the Bavarian hops must inevitably supplant our best hops and drive them into the second place or out of cultivation altogether, 7271, 7287, 7288. 7403, 7404——The Wealds of Kent and Sussex must inevitably go out of cultivation in the event of free trade with Bavaria and Belgium, 7271. 7287, 7288. 7403-7405——The Spalt hops are in much repute in Bavaria, and do not come to England in any quantity; free trade, however, would probably cause a large increase of their use, 7272, 7273. 7278. 7283. 7307.

Obstacles to any large increase of hop-growing in the Hersbruck district, 7278–7281——Steady

Report, 1857—*continued.*

Lucas, Samuel Lancaster. (Analysis of his Evidence)—*continued.*

——Steady increase of hop-plantations all over Bavaria, 7281. 7297. 7299——Any reduction in price consequent upon free trade would benefit the consumer, but to so slight an extent as not to justify the concomitant evil of the ruin of many hop-growers, 7289, 7290. 7406.

A considerable portion of the land in Bavaria is in the hands of small proprietors; these are persons of considerable intelligence; they frequently employ hired labour, 7300-7305——Facility for procuring increased labour, 7308-7312——Frequent instances of large holdings, 7312, 7313. 7327——Prices would decrease in this country, but would not decrease in Bavaria in the event of free trade, 7317-7320——Bavarian hops might, if there were an increased demand, be largely supplied at less profits and lower prices than at present, 7318-7326.

With respect to Belgium, witness and Mr. Parkes had not much time to devote to their inquiries, and visited only the Alost and Poperinghe districts, 7333. 7358. 7359. 7391, 7392——Statement of the cost of production per acre in the town and country districts of Alost, 7335-7336——Statement of the cost in the Poperinghe town and country districts, 7337-7339——Expenses per hundredweight from the time of sale of Alost hops to the merchant, to the delivery into a bonded warehouse in London; total of, 9 *s.* 1 *d.*; 7340.

Practice of the Belgian merchants to sulphur the hops and otherwise to prepare them chemically before export to this country, 7342. 7360——Process of kiln-drying adopted by the growers; there are oast houses for the purpose throughout the country, 7342-7352——Sundry particulars relative to the cultivation and cost of production in the Alost district, as supplied to witness on the spot, 7353 *et seq.*——Sundry particulars, as supplied to witness, relative to Poperinghe town hops, 7368——Remarks relative to the extremely low cost of production in the Alost districts; reason why it is so much less than in the Wealds of Kent and Sussex, 7369-7389.

Ample facilities for largely increasing the cultivation in Belgium, 7368. 7390——Considerable increase of late in the plantations, 7370, 7371——Superior kind of hop grown in the district between Liege and Namur, 7390——Witness is satisfied of the accuracy of his information relative to the cost of production in Bavaria, 7391——He has also every reason to believe in the accuracy of his information relative to the Alost districts, 7392, 7393——Conclusion from witness's inquiries that Belgian hops may be sold in this country at a profit at 2 *l.* 16 *s.* per cwt., 7394-7398——Probability of increased growth in Belgium, having reference entirely to the English market, 7400-7402.

Belief as to the better quality of the Poperinghe hop than the Alost hop, 7402——The Belgian hops, if properly dried and packed, would be nearly equal to ordinary Mid-Kents, 7403——The Bavarian hops are decidedly better than the best English, *ib.*——Fewer bad crop years in Bavaria than this country, 7407——In Belgium the crops vary much as in England, *ib.*

Witness was told by the Bavarian merchants, that as many hops of the better sorts would have been sent to this country in 1854, if the duty had not been reduced, 7407-7411——Probable exclusion of many worthless hops if the duty had not been lowered, 7408-7412.

Lucas, Mr. Witness fully concurs in the evidence and calculations of Mr. Lucas, *Parkes* 7507-7509.

M.

Maidstone. See *Mid Kent.*

Malt and Malt Duty. The malt duty, as well as the hop duty, is paid by the consumer, *Dobson and Pressly* 35-41. 206-214. 250-260. 7413; *Bannerman* 4202, 4203; *Darby* 5621——If the Excise duty on hops be considered an indirect tax upon beer, it would be better and fairer to add it to the amount of duty upon malt, *Webster* 874-885——Effect of the duty upon malt to restrict the consumption of hops; grounds for this conclusion, *Punnett* 2334. 2351, 2352. 2378. 2400, 2401. 2456; *Darby* 5605-5609. 5619-5625. 5690; *H. T. Smith* 5764; *Harryman* 6511-6513——If there were an open malt trade, and an open beer trade, witness would not mind free trade, *Carter* 3035. 3037.

Although witness approves of the principles of free trade, he considers that the malt duty, which limits the consumption of hops, and is a just tax, renders the duty upon hops a wise and expedient measure, *Bannerman* 4197-4228——The duty upon malt now acts as an additional duty upon hops, *Darby* 5605——Evidence in support of the conclusion that the price of hops has practically no effect upon the consumption of malt or barley, *ib.* 5606-5625. 5669-5687——Any advantage to the foreign grower on the score of the malt duty would not protect the home grower from undue competition, *ib.* 5717-5720.

In 1750 the annual consumption of malt per head was four-and-a-half bushels, and in 1856 only one-and-a-half bushel, *H. T. Smith* 5765——Doubt as to the high price of hops in 1854 or 1840 having at all materially affected the consumption or price of malt, *Harrymann* 6506-6522. 6561-6568——Before the abolition of the Customs duty, there

Report, 1857—*continued.*

Malt and Malt Duty—continued.

should be a reduction in the malt duty, *Waterman* 7027. 7046–7059. 7082–7087——An extreme price of hops decreases the consumption of malt, *ib.* 7048——Relief to the English grower if the Excise and Customs duty be renewed, and the duty on malt reduced, *ib.* 7081–7088.

Statement that the price of barley and the duty on malt are materially and prejudicially affected by the occasional high price of hops, *Bass* 7168. 7180.

Proposition for abolishing the Excise duty on hops, and for raising the malt duty from 2*s.* 8½*d.* to 2*s.* 11*d.* per bushel; this abolition would produce rather more than the average of the hop duty, and the collection of the revenue would be greatly facilitated by the change, *Pressley* 7414–7447——This plan would obviate the practice of calling for a postponement of the hop duty, *ib.* 7422–7447——In advocating this proposition, witness does not consider the effect upon the barley grower or hop grower; doubts however whether it would make any difference to either party, *ib.* 7424–7430. 7437–7442.——Nearly 5,000,000 quarters of hops are consumed annually, *ib.* 7418.

The full malt duty paid is not given in the drawback on beer exported, *Bass* 7593.

See also *Barley.* *Beer.*

Management of Hops. Very defective management in the drying of hops, both in East and in Mid Kent, *Waterman* 6993. 6997–7003——Much better management in Herefordshire and Worcestershire than in Mid or East Kent, *ib.* 7035–7037——Doubt as to better or more economical management in the event of free trade, *Nash* 7160, 7161.

Mannington, Isaac. (Analysis of his Evidence.)—Hop grower, at Waldron, in the Weald of Sussex, 4992–4995——Opinion that on an average of years hops are more profitable than any other crop in the Weald of Sussex, 4996, 4997. 5010, 5011. 5035–5040——Difficulty as regards the payment of the duty when crops are abundant and prices low, 4999–5003——The Customs duty, in being heavier than the Excise duty, is so far a protection to the home grower, 5003, 5004. 5012.

Belief that the Excise duty is paid by the consumer, and that its abolition would be no benefit to the grower, 5005–5009——Advantage of capitalists in being able to hold over their crops from abundant years, 5012–5014——Depreciation in weight and quality by holding over for any length of time, 5015–5026——The addition of five per cent. to the duty when the penny postage was established should be removed, 5029–5032——The ordinary rent of land in Sussex is from 10*s.* to 20*s.* an acre, 5042.

Manure. Advantage of an outlay of capital on artificial manure in the cultivation of hops, *Webster* 733–736——The manure costs witness about 8*l.* an acre, *Monckton* 2015. 2034–2039; *Carter* 2978. 2985. 2992.

Marking Hops:

1. *English Hops.*
2. *Foreign Hops.*

1. *English Hops:*

Exceptions taken to the practice of requiring the hops to be marked with the name of the parish in which they are grown; prejudice thereby to Sussex hops, as compared with Kentish hops, *Webster* 802. 805, 809–853; *Tooth* 1638 *et seq.*——Respects in which the system of marking may prevent fraud, and may lead to fraud, *Webster* 810 *et seq.*; *Monckton* 2168–2174——Consideration of the practice of marking; doubt as to its being expedient, or of much use in preventing fraud, *T. Smith* 1138 *et seq.*; *Tooth* 1145, 1146. 1638 *et seq.*——It is an advantage to the purchaser to be protected by the mark, but growers would still mark the hops correctly, even if not compelled to do so, *T. Smith* 1140–1150. 1161, 1162. 1181–1186. 1197–1200——The buyer should depend upon his own ability, rather than be guided by the Government stamp, which often gives a fictitious value to inferior hops, *ib.* 1147 *et seq.*——Fraud notwithstanding the marking of the hops; instance of this, *Curteis* 4076–4081.

Prevention of imposition by the Government mark, *Neve* 2765–2774; *Carter* 3069–3076; *Hammond* 3379–3387; *J. P. Smith* 4621; *Taylor* 4813, 4814——Objects and advantages of the Marking Act as applied to home-grown hops, *Punnett* 2935–2940——Approval of the practice of marking as being satisfactory to both buyer and seller, *Bannerman* 4322–4332——Views of the Farnham planters in favour of the marking of hops, *Nichols* 4982–4984——The system of marking is very advantageous, but it would be continued to a great extent if it were not compulsory, *Richardson* 6328–6335.

2. *Foreign Hops:*

As regards the difficulty of getting at the growers of foreign hops in the event of fraud, the absence of marking does not constitute any practical objection to purchasing such hops, *Punnett* 2932–2935. 2937. 2941–2944——Practice in parts of Bavaria and Bohemia of marking certain hops as evidence of their being grown in good districts, *Richardson* 6284, 6285. 6287——Witness sells foreign hops to the brewers by sample, and

Report, 1857—*continued.*

Marking Hops—continued.

2. *Foreign Hops*—continued.

and has heard no complaint of their not being marked, *Richardson* 6286. 6288. 6296–6300——Fraud in the case of some inferior Bavarian hops sent to this country in 1854, *Whitling* 6750——Advantage of a mark in the case of the Bavarian hops, *ib.* 6751——System of optional marking in Bavaria; heavy penalties for frauds, *Lucas* 7226*.

Merchants. Practice as regards sales by the planters to country merchants, *Curteis* 3829–3832. 3836. 3844, 3845——Witness, who is a merchant, buys hops generally through the factor, except in the case of East Kent hops, which it has been the custom to buy directly from the growers, *Evans* 5812–5821. 5831–5836——Purchases from the grower or factor are generally ready-money transactions, *ib.* 5822, 5823. 5827–5829.

Mid-Kent. The hop land about Maidstone is worth from 3 *l.* to 3 *l.* 10 *s.* an acre, *Punnett* 2298, 2299. 2301——Golding's hops chiefly are grown about Maidstone, but the Grape and Jones's are also grown, *ib.* 2304. 2314–2316——In witness's district the prices obtained have generally remunerated the planter, *ib.* 2374–2376——So far as Mid-Kent is concerned, the duty does not tend to limit the hop growing to men of large capital or holders of large farms, *ib.* 2416–2428.

Less produce, and higher price and profit, in the case of the Mid-Kent hops, than of those of the Wealds of Kent and Sussex, *Hammond* 3193–3202. 3274–3279; *Curteis* 4095.

Size of the farms about Maidstone, and proportion of hop ground on each farm, *Lucas* 3698–3700——A farm would not let at all if some portion of it were not hop land, *ib.* 3701, 3702——Ruinous results in witness's district if hop lands were to go out of cultivation, *ib.* 3706. 3795.

High value of some of the hop land about Huton, *Bannerman* 4274——Absence generally of complaint in Mid-Kent, in regard to the payments of the duty, *ib.* 4313–4319. 4321——Witness as a Mid-Kent grower makes no complaint of the duty, *ib.* 4335.

See also *Acreage Duty*, 3. 5. *Bavaria*, 11. 12. *Belgium*, 7. 8. *Cost of Cultivation. Excise Duty. Free Trade. Golding Hop. Management of Hops. Prices. Profit or Loss of Hop Growing*, 2. 5. *Rochester Collection.*

Moderate Crops. Quantity and price of hops grown by witness in 1853, 1854, 1855 and 1856; larger profit on the moderate crop in 1853 than on the abundant crop in 1855, *Webster* 629–639——Under the present system a moderate crop is far better for the grower than a large crop, *Reeve* 1976; *Harris* 3502–3504.

Monckton, Doctor Stephen. (Analysis of his Evidence.)—Has been engaged in the culture of hops for fourteen years; for the last five years has grown hops on land of his own at Brenchley, in the Weald of Kent, 1977–1985——Calculation that it costs 27 *l.* 10 *s.* to cultivate an acre of hops in witness's neighbourhood; in his own case it has cost 30 *l.*, but he considers 50 *s.* of this outlay to have referred to the permanent improvement of the land, 1986–2040. 2056——Rent of land in witness's neighbourhood, 2008–2010——Amount of the extraordinary tithe, 2011–2013——Calculation of 2 *l.* per cwt. as the cost of picking, drying, duty, &c., 2041–2055.

Particulars as to witness having exported some hops, by way of experiment, in 1855 and 1856, and as to his having failed to sell them; expense incurred in the matter, 2058–2089. 2099. 2100——Statement as to Belgian hops having been sold in Belgium at 40 *s.* a cwt., and even less; apprehension hereon of injurious competition with this country if the Customs' duty be abolished, 2071. 2075–2077. 2090–2094. 2101 *et seq.*——Statement as to Bavarian hops having been sold abroad at 4 *l.* a cwt.; apprehended injurious competition from these hops in the event of the abolition of the Customs' duty, 2072. 2075–2077. 2090. 2095–2098. 2101 *et seq.* 2141–2147.

Increased competition would result in hop growing in this country being largely given up, as well as in a diminution of prices, 2101, 2102. 2116–2140——How far free trade would affect any one class of home-grown hops more than another, 2122, 2123. 2127–2140—— Statement as to the factor, or intermediate man between the producer and the brewer, getting an extra profit on the score of quality, 2138. 2153, 2154. 2160–2168.

Unfairness of a tax upon the value, 2149–2152——Unfairness of the present tax upon the quantity, 2153–2159. 2175–2178. 2185——Prevention of imposition by the Government mark, 2168–2170——Liability of the system of marking to be abused, 2170–2174——Advocacy of a 3 *l.* acreage duty in lieu of the present Excise duty, the Customs' duty to be retained, 2179 *et seq.*——Expediency of the duty being a tax upon profits, rather than upon produce, 2185. 2255–2259. 2271, 2272.

Advantages under the present system of the high-priced cultivators of Mid and East Kent as compared with the low-priced cultivators of the Wealds of Kent and Sussex, 2185–2191. 2206. 2259–2267——Mention of the late Mr. T. L. Hodges as having first suggested a 3 *l.* acreage duty, 2193–2196——Unwillingness of witness to accept an acreage duty of 6 *l.* 10 *s.*, which is equivalent in the aggregate to the present duty, 2203. 2246–2252. 2268–2270.

Report, 1857—*continued.*

Monckton, Doctor Stephen. (Analysis of his Evidence)—*continued.*

Opposition made by some low-priced cultivators to an acreage duty, 2204. 2206. 2210–2213——Belief that the high-priced cultivators, though unwilling that any change be made affecting their present monopoly, are generally willing to accept an acreage duty of 3 *l.*, 2204–2209. 2214, 2215. 2227–2232——The low-priced planters now pay a great deal too much in abundant years, and do not recover the duty, 2251. 2253, 2254.

Mortgage of Crops. See *Loans to Growers.*

N.

Nash, John. (Analysis of his Evidence.)—Grows between thirty and forty acres of hops on the Ragstone Hills, near Maidstone; is also a hop merchant, 7122–7127——Has been an advocate of an acreage duty, as being the scheme, more than any other, upon which there is most unity among the planters, 7128, 7129——If an acreage duty is not adopted, witness would like to see the war duty removed, 7131——The abolition of the Excise duty, and the reduction of the Customs duty by a corresponding amount, would be a great relief, 7131. 7137–7141——Witness would rather have free trade than the present system, 7131. 7133–7135.

Reference to the very high extraordinary tithe in Kent as a great tax upon the planters, 7136. 7142, 7143——Witness grows Goldings almost exclusively, 7144——The cost of cultivation is about 32*l.* per acre, 7145, 7146——As a merchant witness has found it almost impossible to sell Belgian hops in lieu of English, 7147–7154. 7156, 7157——Bavarian hops of the best quality alone compete successfully with English hops, 7148. 7157——General feeling of brewers, planters, and the public in favour of the removal of the duty, 7155. 7164.

Opinion that Weald of Kent and Sussex hops would not be more affected than the better hops by free trade, 7158, 7159. 7163——Doubt as to better or more economical management in the event of free trade, 7160, 7161——Benefit chiefly to the planter if the duty were removed; benefit also to the consumer in years of scarcity, 7161, 7162. 7165–7167.

Neve, Thomas. (Analysis of his Evidence.)—Hop grower and land agent in the Weald of Kent; has grown hops for forty-four years, 2560, 2561. 2564–2566——The average expense of cultivation in the Weald of Kent is about 25*l.* an acre, 2562——The expenses of picking and drying and the duty amount to about 40*s.* per cwt., 2563——Better character of the soil near Canterbury and Maidstone than of the soil in the Weald of Kent for the production of hops, 2567–2570. 2584–2591——Respects in which the expense of cultivation is greater in the Weald of Kent than about Canterbury or Maidstone, 2571–2600——Lower rental of the land in the Weald of Kent than near Maidstone, 2601–2613——The expense of cultivation is rather less in the Weald of Sussex than in the Weald of Kent, 2616–2620——Willingness of the landlords in Kent to encourage the growth of hops; the growth is compulsory in some cases, 2621–2623.

The hop growers and farmers in the Weald of Kent are not generally men of capital, 2624–2626——Inability in most instances of the hop growers to hold over their crops for better prices, 2627–2630——Character of the drainage necessary on the hop grounds, 2631–2636——Greater produce but less aggregate value of the crops in the Weald of Kent than in Mid or East Kent, 2640–2653——Considerable deterioration by holding over the produce in abundant years, 2654——In 1856 and other years witness has left hopes ungathered, as not being worth the expense of picking, drying, and duty, 2655–2665. 2694.

Belief that if there had been no duty at all in 1855 and 1856 the planters would have got a better price for their hops, 2666, 2667. 2676 *et seq.* 2782——Effect of the Excise duty in forcing sales and lowering prices, 2667–2669. 2672–2674——When prices are very low the planter pays the duty out of his own pocket, 2670, 2671——Belief that, in the aggregate of hop growing, there is a loss on account of the duty, 2674, 2675——In the event of free trade, witness does not apprehend any increased import of foreign hops at prices injurious to the home growers, 2676 *et seq.*

Without reference to the duty, an abundant crop is injurious, but the duty makes it still worse, 2693–2700. 2816, 2817——Absence of injury to the home producer by free trade in corn and other things; inference therefrom in regard to free trade in hops, 2701–2706. 2716, 2717——Extent of deterioration by the keeping respectively of British and foreign hops, 2716. 2718, 2719——The planters and the brewers would be better off if there were free trade, and the revenue would be the only loser, 2720–2725. 2777–2779.

Explanation as to witness having continued to grow hops, though he has not, on the whole, profited thereby; he has often held his hops over, and thus has lost at times, 2733–2745. 2805–2814——Estimated loss of from 40*l.* to 50*l.* an acre by the hop growers in the Wealds of Kent and Sussex during the last three years; consequent distress, 2753–2761——Advantage in some respects of the compulsory marking of hops, 2765–2774——

Neve, Thomas. (Analysis of his Evidence)—*continued.*

2774——Sussex and Weald of Kent hops might be sold at a profit at 60*s.* a cwt. if there were no duty, 2775, 2776——Belief that the abolition of the duty would not be any benefit to the consumer, 2778–2781.

The Excise duty for the last two years has amounted to 30*s.* in the pound upon the rental, in the Wealds of Kent and Sussex, 2782–2784. 2797. 2815——In the Weald of Kent there are not many parishes where there is any extraordinary tithe; amount of the charge where levied, 2785–2788——Witness would prefer a 3 *l.* acreage duty to the present system or to the abolition of the war duty, 2789, 2790. 2802–2804——Objection to an acreage duty of 6 *l.* 10*s.* as an equivalent for the present duty, 2791–2794——The present duty is monstrous; if it affected the whole community it would not be submitted to for a week, 2794–2798——Calculation that a farm of 100 acres, including five acres of hop ground, might be undertaken on a capital of 10 *l.* an acre, 2818–2822.

New Hops. Necessity of new hops for certain descriptions of beer, *Evans* 5899, 5900. 5912–5914.

Nichols, Ben. (Analysis of his Evidence.)—Cultivates eighteen acres of hops near Farnham, and manages some hop land in other places, 4840–4843——Nature of the soil of witness's land at Farnham, 4844——He grows upon it the best white bine hops, which are of first class quality, 4845–4847. 4885–4889——Varying value of hop land in witness's neighbourhood; he has been offered as much as 25 *l.* an acre on lease for some land close to Farnham, 4848–4850. 4860, 4861. 4902–4907. 4913——Estimate of 54 *l.* 17*s.* as the expenses per acre of witness's first class land; particulars hereon, 4851–4860——Statement of the expenses of cultivation in the case of Mr. Paine's land, 4863–4866——Varying amount of the outlay upon picking and drying, 4867–4884.

Practice of witness and of planters about Farnham, Alton, &c., to sell large portions of their hops at Weyhill Fair, which is attended by brewers, merchants, and factors, 4890–4896. 4915–4919. 4963. 4968. 4974——Occasional losses by Farnham planters; in 1856 they lost the amount of their rent, 4897–4901. 4940, 4941. 4987——Large crops frequently grown about Farnham, 4908–4912——Witness pays 30*s.* per acre as extraordinary rentcharge, and 12*s.* as ordinary charge, 4914. 4956.

Evidence opposed to free trade in hops, 4920 *et seq.*——Effect of free trade to throw much land out of cultivation, especially the inferior land, and to curtail employment, 4922–4924. 4942–4955——Opinion that free trade would be no benefit to the consumer, 4926——Probability of successful competition on the part of Bavarian planters, if there were no duty, 4927–4938. 4945–4951——Some East Kent hops fetch fully as good prices as the best Farnham hops, 4939.

Diminished cultivation of hops about Farnham for the last year or two; witness and Mr. Paine have grubbed some land, 4944. 4964–4967. 4969–4972——Impression that foreign hops can be produced more cheaply than English hops, and that thus free trade would lower prices, 4946–4953——Doubt as to the average price of Farnham hops at Weyhill Fair, 4959–4963——Mr. Paine has grown over 200 acres of land, but has lately grubbed thirty or forty acres, 4969–4973.

Reference to a meeting of hop planters at Farnham, relative to the duties; belief that the majority were in favour of a continuance of the present state of things, 4975–4982. 4989–4991——Views of the Farnham planters, in favour of the marking of hops, 4982–4984——Approval of the credit given in the collection of the duty, as well as of the present system generally, 4985–4988.

Northiam. Witness cultivates about forty acres of hops in Northiam parish, on the borders of Kent and East Sussex; only a small portion of the land is in Kent, *J. Selmes* 5043–5048——The hops marked as Kentish hops generally fetch 2*s.* or 3*s.* more per cwt. than those grown within the Sussex border, although the latter are the better of the two, *ib.* 5049–5054——Character of the soil of witness's land, *ib.* 5055, 5056——The rent is about 1 *l.* an acre, *ib.* 5057.

Number of Planters. Return of Excise collections in which hops were grown during the last ten years, and number of planters in each collection, *App. p.* 407.

O.

Oast-Houses. Witness looks upon the expense of oast-houses as included in the rent of hop land, *Webster* 603–606——An oast-house, which cannot properly be erected for less than 100 *l.*, is not attached to every small hop garden, *ib.* 608–614——Outlay of from 20 *l.* to 30 *l.* an acre required in the erection of oast-houses, &c., *Lucas* 3697——Great loss on the score of buildings if hop cultivation were abandoned, *ib.* 3707.

Old Duty. Reasons why the inland revenue returns are still made out with the old duty and the new duty, *Dobson & Pressly* 70, 71.

Report, 1857—*continued.*

Over Supply. The acreage under cultivation is frequently larger than is necessary for the average consumption, *Pressly and Dobson*, 191, 192——Excess of produce above consumption in abundant years; the supply in fact is beyond the demand, *Punnett* 2378, 2382. 2383. 2398-2402——The Excise duty is less the cause of distress than the over supply in proportion to the demand, and the consequent low prices, *Punnett* 2824-2828; *J. P. Smith* 4441, 4442. 4487-4490. 4550. 4597; *Harryman* 6531 *et seq*——An aggregate duty of 150,000 *l.* would now represent a favourable crop; excess of supply when the duty exceeds that amount, *Hammond* 3357-3368——Loss if there were any large increase in cultivation and supply, *Lucas* 3794——The planters fear increased growth at home rather than foreign competition, *Curteis* 3917——There are more Sussex hops, but not more Worcester hops in the market than there is demand for, *J. P. Smith* 4550——Large quantity of English hops unconsumed out of the over produce in 1855 and 1856, *H. T. Smith* 5760-5763.

P.

Packing. See *False Package.*

Paine, Mr. Statement of the expenses of cultivation in the case of Mr. Paine's land near Farnham, *Nichols* 4863-4866——Mr. Paine has grown over 200 acres of hop land, but has lately grubbed thirty or forty acres, *ib.* 4969-4973.

Pale Ale. Large consumption of hops by witness's firm, *Bass* 7181——Use by witness's firm of the best Kentish and Worcestershire hops almost exclusively, *ib.* 7182-7184.

Parkes, Thomas, jun. (Analysis of his Evidence.)—Hop-factor; accompanied Mr. Lucas in his tour on the Continent, 7482-7483——Difficulty experienced on the Continent in getting samples of the several hops, on account of the period of the year when the tour was undertaken, 7484. 7494-7497——Different qualities of the Hersbruck hops in Bavaria, 7484——The hops of the Holetau district in Bavaria are fully equal to the average of Mid and East Kent hops, 7485. 7488——The Holetau hops are superior to the Hersbruck hops; reason why they have not superseded them, 7486-7494.

The Belgian hops near Alost are fully equal to the hops of Sussex and the Weald of Kent, but are at present very badly managed, 7498-7503——Character of the inferior hops of Bavaria; they are about equal to the Alost hops, 7505-7507——Witness fully concurs in the evidence and calculations of Mr. Lucas, 7507-7509——Anticipated successful competition on the part of Belgium and Bavaria, in the event of free trade, 7509-7512. 7550.

Particulars as to the prices of Sussex and American hops in each of the months from September 1854 till May 1855; great reduction in the price of Sussex hops, and nominal character of the business in them, in consequence of the increased importations through the reduction of the duty, 7514-7549——Reference to an instance of foreign hops being packed in English cloth and sold as English hops; circular sent by the merchants to the brewers with reference to this matter, 7553-7559.

Payment of Duty. Practice prior to 1820, and subsequently thereto, in regard to the periods at which the Excise duty has been collected; occasional postponements, *Pressly* 4. 119. 287——Belief as to the convenience of the present plan of making the first moiety payable in May and the second in October, *ib.* 5——Considerable credit given in regard to the payment of the duty, *Dobson* 79-84. 174-179——Inexpediency of the postponement of the payment of the duty; belief that it would be better for the growers if so long a time were not allowed them for payment, *ib.* 286. 288-313.

How far the practice of hop growers to appropriate any of the proceeds of the produce directly to the payment of the Excise duty, *Reeve* 536-539——Great difficulty in some cases if the duty were required to be paid when the hops were sold, *ib.* 540——Effect of an earlier payment to prevent persons without proper capital from speculating in hop growing, *Webster* 722-733.

Advantage to the grower in ample time being allowed for the payment of the duty, *T. Smith* 1075-1083——The long credit in regard to the payment of the duty is an inducement to continued cultivation, *Tooth* 1428——Inexpediency of the occasional postponement of the duty, *Carter* 3015-3017——The duty should all be paid within three months after the declaration, *Hammond* 3307, 3308. 3342. 3344——Difficulty at present of prompt payment of the duty when there is an abundant crop; suggestion hereon, *ib.* 3343-3350.

Disadvantage of collecting a moiety of the duty in November; it should all be collected in March, after the crop, *Lucas* 3732-3753. 3787-3792; *Cuthbush* 5378; *Harryman* 6408-6417. 6456, 6457. 6531-6535——Evil of the long credit as regards the payment of the duty; tendency thereby to increased cultivation without proper capital, *Lucas* 3732. 3788-3790; *Bannerman* 4150, 4193-4196; *Leney* 5451-5470; *Darby* 5652, 5653. 5727-5730; *Harryman* 6409. 6416, 6417. 6533-6538.

Complaint

Report, 1857—*continued.*

Payment of Duty—continued.

Complaint as to the uncertainty of the time of payment, *Curteis* 4094——Although the long credit is in some respects injurious, many planters would be ruined if the duty were always promptly enforced, *ib.* 4102-4106——Approval of the present periods of payment of the duty, *J. P. Smith* 4527, 4528. 4640-4643——Advantage of the credit in the payment of the duty in the case of small capitalists, *Taylor* 4818-4820——Approval of the credit given in the collection of the duty, as well as of the present system generally, *Nichols* 4985-4988.

See also *Collection of Duty. Defalcations. Evasion. Loans to Growers.*

Penalties. Penalties on the grower for not complying with the regulations of the Board of Inland Revenue, *Pressly* 13. 72-75.

Picking and Drying. Amount (varying from 35 *s.* to 45 *s.* per cwt.) calculated as the cost of picking, drying, and duty, &c.; *Webster* 586. 602. 623-626. 642, 643; *Reeve* 1940-1942; *Monckton* 2041-2055; *Punnett* 2279-2290; *Neve* 2563; *Kenward* 3085-3091; *Hammond* 3393. 3394; *Bannerman* 4136. 4186-4192; *Leney* 5432, 5433——Varying amount of the expenditure in picking, *Punnett* 2281-2287; *Bannerman* 4186-4192; *Nichols* 4867-4884——Less cost of picking, drying, and the duty in Sussex than in Kent, *Punnett* 2843-2845. 2850, 2851——The expenses of picking, drying, and the duty, amount, in witness's case, to about 50 *s.* a ton, *Carter* 2968. 2999. 3001.

In short-crop years the picking costs more than when there are abundant crops, *Kenward* 3088, 3089——The picking, drying, and duty come to from 40 *s.* to 50 *s.* per cwt. near Farnham, *Harris* 3422-3424——The picking, drying, and duty, in Mid-Kent cost from 40 *s.* to 50 *s.* per cwt., *Lucas* 3695-3696——The drying and picking in Herefordshire come to from 22 *s.* to 25 *s.* per cwt., *Taylor* 4741.

Poling. Great difference in the expense of poling, accordingly as larger or shorter poles are used, *Tooth* 1384-1386——The poling costs witness (in the Weald of Kent) about 6 *l.* an acre, *Monckton* 2056——Different character of the poling in the Weald of Kent, and about Canterbury and Maidstone; greater expense in the former district, *Neve* 2574-2583——Doubt as to the expense of poling being greater in the Weald of Kent than in Mid-Kent or East Kent, *Punnett* 2947, 2948——Heavy expenses connected with poling in East Kent, *Carter* 2977-2981——More expensive poling in witness's district (Mid-Kent) than in Sussex, *Bannerman* 4259——Expensive system of poling adopted by witness, in Worcestershire, *J. P. Smith* 4519-4526——Sum of 5 *l.* as the average cost of witness's poling per acre in Herefordshire, *Taylor* 4806.

See also *Bavaria*, 1. *Belgium*, 1. *Cost of Cultivation.*

Poperinghe Hops. See *Belgium*, 4.

Postponement of Payment. Occasions on which the payment of the Excise duty has been postponed, *Pressly* 4——The postponements have chiefly been made when the crop has been very abundant, *ib.* 4. 119——Since 1819 there have been fourteen postponements of the payment, *ib.* 287.——*See* also *Payment of Duty.*

Pressly, Charles, and Thomas Dobson. (Analysis of their Evidence.) (*Mr. Pressly*).—Is Chairman of the Board of Inland Revenue, 1——The Excise duty on hops was first imposed in 1711, at the rate of 1 *d.* per pound weight, 3——Alterations in the rate up to 1840, since which year it has been fixed at 2 *d.* in the pound, with an addition of 5 per cent., 3. 65-69——Practice prior to 1820 and subsequently thereto, in regard to the periods at which the duty has been collected; occasional postponements, 4. 119. 287——Belief as to the convenience of the present plan of making the first moiety payable in May and the second in October, 5.

(*Mr. Pressly and Mr. Dobson*).—Considerable expense which would be incurred by the plan of receiving hops into bond, and not collecting the duty till they are taken out of bond, 6-8. 124. 242——(*Mr. Pressly*).—Immense fluctuation in the annual produce of the hop grounds, 9-11——The average annual produce of the duties for the last three years has been 434,485 *l.*, 12——(*Mr. Pressly and Mr. Dobson*).—Regulations of the Board of Inland Revenue for ascertaining the amount to be charged on each grower, 13. 72-75——(*Mr Pressly*).—Penalties on the growers for non-compliance with the regulations, *ib.*——(*Mr. Pressly and Mr. Dobson*).—Absence of complaint against the nature of the regulations, 14-18. 75——Absence of evasion of the duty, 19.

(*Mr. Pressly*).—The expense of collection is about 17*s.* 8*d.* per cent., 20——(*Mr. Pressly and Mr. Dobson*).—Per centage of the duty in proportion to the price, 21——(*Mr. Dobson*).—The average price over a series of years has been about 6 *l.* a cwt., 21. 172, 173——(*Mr. Pressly*).—The customs duty on foreign hops is 4 ¾ *d.* a pound, or more than double the Excise duty, 22-24——(*Mr. Dobson*).—Amount of the importation of foreign hops in each of the years 1846-56; 25-27. 31——(*Mr. Dobson and Mr. Pressly*).—Reduction in the foreign duty for the year 1854 and unusually large importation in that year, 28-31——Counties in England in which hops are cultivated, 33, 34.

Report, 1857—*continued.*

Pressly, Charles, and Thomas Dobson. (Analysis of their Evidence)—*continued.*

Conclusion that the duty upon malt and hops falls upon the consumer, 35–41. 189, 190. 206–214. 250–260——(*Mr. Dobson*).—Causes of the abolition in 1830 of the beer duty; partial character of the tax, 42–48——(*Mr Dobson and Mr Pressly*).—Amount of the duty respectively on malt, hops and beer, previously to 1830 and at the present time, 49–64——Duty of about 5 *s.* 6 *d.* on the malt, and 4 *d.* on the hops required in a barrel of ordinary London porter; calculation hereon that about two pounds of hops are used per barrel, 57–60. 108–117. 182–188. 250–254——Reason why the Inland Revenue returns are still made out with the old duty and the new duty, 70–71——(*Mr. Dobson*).—Security is not required for the payment of the hop duty, 76–78——Considerable credit given in regard to the payment of the duty, 79–84. 174–179.

(*Mr. Pressly and Mr. Dobson.*)—Evidence as to the tendency of the demand upon the grower for the payment of the duty to cause him to sell at a loss when the produce is abundant, 85–104——(*Mr. Dobson.*)—The crop is mainly disposed of very early in the season, 100. 178——(*Mr. Pressly.*)—Tendency of the duty to militate against small growers as compared with capitalists, 101–104. 118–123——(*Mr. Dobson and Mr. Pressly*).—Further explanation as to the machinery employed by the Excise for the collection of the duty, 125–139.

(*Mr. Dobson and Mr. Pressly.*)—Drawback is allowed on hops exported, 142,143. 155–157. 193–197——(*Mr. Dobson*).—Quantity exported to different countries in 1856, and in some of the preceding years; large export to Australia, 144–148. 319–324——Drawback upon beer exported; the hop duty is not computed, 149–153——Increased export of beer since 1849; 154——Deduction of ten per cent. from the duty as allowance for bagging, the deduction being about eight per cent. on hops in pockets, 159–166. 171. 317, 318——(*Mr. Pressly and Mr. Dobson.*)—Small deduction from the duty on foreign hops, 167–171——(*Mr. Dobson.*)—The average duty for the last ten years has been 352,798 *l.*; 180, 181.

The acreage under cultivation is probably larger than is necessary for the average consumption, 191, 192——Saving of about 3,000 *l.* a year in the cost of collection if an acreage duty were imposed, 200–205——It would require a duty of about 6 *l.* 10 *s.* an acre to bring up the aggregate to the average for the last ten years, 218–220——(*Mr Pressly.*)—The receipts of duty per acre vary immensely in the different collections, 221——(*Mr. Dobson.*)—Few defaulters in the payment of the duty, 222, 223——Number of prosecutions since 1846 for default of payment and other offences, 224–226.

(*Mr. Pressly and Mr. Dobson.*)—Consideration of the effect of an acreage duty; it would be very unequal in its operation, 227–245——(*Mr Dobson.*)—Impracticability of an *ad valorem* duty, 241——A short crop generally is preferred by the hop growers, 246–249——Larger growth if there were no duty, 261, 262——Larger importations if the Customs' duty were reduced to the level of the Excise duty, 263–274——Possibility of the producer being forced, when the crop is over abundant, to sell below the cost of production, 275–280. 283–285——Exclusive of picking, curing and packing, the cost of production is from 22 *l.* to 25 *l.* an acre, 281, 282. 314.

Inexpediency of the postponement of the payment of the duty; belief that it would be better for the growers if so long a time were not allowed for payment, 286. 288–313——(*Mr Pressly.*)—Since 1819 a moiety of the duty has been only once remitted, 287——Since the same year there have been fourteen postponements of the payment, *ib.* (*Mr. Dobson.*)—Less cost of production in the case of foreign hops, 314–316.

[Second Examination.]—(*Mr. Pressly.*)—Further repetition of the opinion that the Excise duty is paid by the consumer, and has the effect of a duty upon beer, 7413——Proposition for abolishing the duty, and for raising the malt duty from 2 *s.* 8 ½ *d.* to 2 *s.* 11 *d.* per bushel; this addition would produce rather more than the average of the hop duty, and the collection of the revenue would be greatly facilitated by the change, 7414–7447——In advocating this proposition witness does not consider the effect upon the barley grower or hop grower; doubt however whether it would make any difference to either, 7424–7430 7437–7442.

There have been occasional prosecutions of brewers for using a substitute for hops in beer; return hereon, 7448–7450, and *App. p.* 412——Reference to the number of officers employed in each collection; return hereon, 7451, 7452, and *App. p.* 412.

Prices. The average price of hops over a series of years has been about 6 *l.* a cwt., *Dobson* 31. 172, 173——Statement as to some new hops having been sold in 1855 at the low price of 32 *s.* per cwt., *Webster* 448–453. 663. 682, 683——In 1854 Sussex hops sold at 20 *l.* a cwt. in consequence of the short supply, *ib.* 684–686——In 1855 Sussex hops sold at from 35 *s* to 70 *s.* a cwt., *T. Smith* 1137——Great variation in the price of hops in 1854 and 1855, *Tooth* 1443–1452. 1592–1594——Prices obtained in 1855 and 1856, *ib.* 1473–1477. 1618–1631——Prices respectively of Kent and Sussex hops on 11th September 1852, *Reeve* 1948, 1949——In 1854 witness did not get more than 10 *l.* 18 *s.* a cwt. for hops, *ib.* 1954–1958.

Report, 1857—*continued.*

Prices—continued.

Low price of Sussex hops in 1855 and 1856, *Kenward* 3092, 3093——The quoted prices in the Borough are not what the producer receives, but what the brewer pays, *Curteis* 3861, 3862——As regards a statement that the average price of Sussex hops for the last ten years has been under 3 *l.*, witness does not believe the price has been so low, *T. P. Smith* 4540. 4547-4550. 4584-4587——Much higher price of witness's hops than of the Sussex hops, *ib.* 4535-4546——Similar price generally of Herefordshire and Worcestershire hops, *Taylor* 4743——Great fluctuation in prices in 1853, *Cutbush* 5374-5377——Prices and value respectively of the hops of East Kent, Mid-Kent, the Weald of Kent, and Sussex, *H. T. Smith* 5562-5572——In 1856 the average price of East Kents was 84 *s.* per cwt., and of Sussex hops 63 *s.*; the difference is generally greater, *ib.* 5562-5568——Tabular statement showing the acreage of hops, the average growth per acre, and the average price in each of the years 1835-56; authority for this statement, *ib.* 5744-5751.

Reference to the high price of 35 *l.* per cwt. as having been given for hops in 1817, *Evans* 5907, 5908. 5918. 5924-5927——The lowest price at which hops of fair quality have been sold is 50 *s.* per cwt., *ib.* 5909——Very high prices in 1854; foreign hops were not sold at the highest prices, *ib.* 5919-5923. 5928——Circumstance of English hops being sold in 1855 as low as 35 *s.* per cwt., *ib.* 5956-5958——The average price in 1855 would probably have paid the growers, but they could not sell, *Richardson* 6340.

Doubt as to the accuracy of the tables of prices published in the Borough; belief that the average of 15 *l.* 19 *s.* as the price in 1854, is much too high, *Harryman* 6418-6431. 6516-6518——Reference to witness's sale-book as affording a good test of the prices, *ib.* 6418-6421. 6433, 6434——The price more frequently falls than rises after Christmas, but not so often as three years out of four, *ib.* 6426-6429——Reference to a certain paper professing to give the average price in each of the years 1847-54, *ib.* 6434-6444——Belief that in consequence of the reduced acreage prices in the present year will be very remunerative, *ib.* 6541.

Fallacy in relying upon averages of the prices, as regards the effect of foreign competition with this country, *Whitling* 6601-6604——High price at which hops sold in 1840, *Waterman* 7089-7091——High prices fetched in 1853, *ib.* 7092-7094——Very high prices paid by witness for English hops at different periods in 1853, 1854, and 1855, *Bass* 7561——Average prices paid in each of the years 1847-1856, *ib.* 7561-7563.

Average prices of British and foreign hops in each of the years 1846-56, *App. p.* 409.

See also *Barley. Bavaria*, 6. 7. *Belgium*, 7. *Customs Duty*, 2. 3. *Excise Duty*, 3. 5. *Forced Sales. Free Trade. Full Crops. Over-supply. Qualities of Hops.*

Private Brewers. Small quantity of hops sold to private brewers through growers; this cannot be prevented, nor is it to be objected to, *Curteis* 3986-3990. 4047-4058.

Produce. Immense fluctuations in the annual produce of the hop grounds, *Pressly* 9-11; *Reeve* 435-438——Great uncertainty and expense attendant upon the cultivation of hops, *Reeve* 337-354——Fluctuation in the produce per acre; in the Battle district the average is about eight cwt., *Webster* 627-633——Larger produce per acre in the case of Sussex hops, which are at a low price, than of the Kentish hops, which are of a superior kind, *T. Smith* 1061-1063.

Great variation in the produce of witness's land in 1854 and 1855, *Scott* 1437-1442——Average produce generally of thirteen cwt. per acre in 1855, and nine cwt. in 1856, *ib.* 1467-1473——The average produce of the Weald of Kent for the last seven years has been about eight cwt. per acre, *ib.* 1507——Average of about six cwt. per acre as the produce of Goldings, &c., in Mid-Kent, *ib.* 1508, 1509. 1564-1568——More certain crops in Bavaria and Belgium than in this country, *ib.* 1745-1747. 1753-1756.

Average acreage produce of the kingdom in each of the years 1852-55, *Reeve* 1953——From six cwt. to six and a half cwt. is a fair average crop in Mid-Kent, *Punnett* 2300. 2302, 2303——As regards the large crop grown by witness in 1856, compared with the average of East Kent, he attributes it to his large outlay in cultivation, *Carter* 3022-3027——Larger quantity of the Jones's and Grape hops than of the Golding hops grown per acre, *Bannerman* 4278-4280. 4291, 4292.

See also *Area of Cultivation.*

Profit or Loss of Hop-Growing:

1. *Sussex and the Weald of Kent.*
2. *Mid-Kent and East Kent.*
3. *Hampshire.*
4. *Worcestershire and Herefordshire.*
5. *Generally.*
6. *Foreign Hops.*

Report, 1857—*continued.*

Profit or Loss of Hop-Growing—continued.

1. *Sussex and the Weald of Kent:*

Explanation as to witness having grown hops in Sussex for thirty years, though he considers that in the Weald of Kent, and Sussex generally, it has not been a profitable business, *Reeve* 414-419. 423. 424——A price of 4 *l.* per cwt. upon a yield of fifteen cwt. to the acre would be remunerative, *Webster* 644-647——Evidence to the effect that hop-growing in Sussex is not on the whole a very profitable occupation; capitalists do best, but many lose whilst others gain, *T. Smith* 973-1014. 1107-1110. 1132-1136.

Witness has grown hops in the Weald of Kent for seven years, and has lost money by them, *Tooth* 1710-1712. 1917-1925——Sussex and the Weald of Kent are the districts in which the planters lose most frequently by the crops, *ib.* 1893-1897——Witness's father, as well as himself, lost money in the long run by hop-growing, *ib.* 1923-1924.

Reference to returns for each of the years 1847-1851 and 1856, showing a loss on the whole on hop-growing in Sussex, *Reeve* 1945-1975——In 1853 there probably was a profit of 27 *l.* an acre in Sussex, *ib.* 1953. 1975——Explanation as to witness having continued to grow hops in the Weald of Kent, though he has not on the whole profited thereby; he has often held his hops over, and thus, at times, has lost money, *Neve* 2733-2745. 2805-2814——Sussex and Weald of Kent hops might be sold at a profit of 60 *s.* a cwt. if there were no duty, *ib.* 2775, 2776——Sussex hops may be grown at a profit at about 4 *l.* 4 *s.* per cwt., *Kenward* 3094, 3095——Hop-growing in Sussex is at times a losing business with many, but witness has been a lucky grower, *ib.* 3096-3101. 3133-3143——Impracticability of a profit at the price of 60 *s.* or 70 *s.* per cwt., *Harris* 3452——Particulars as to the losses and gains of witness in hop-growing for the last ten years in the Weald of Kent; it has been a losing business rather than otherwise, *Hartridge* 3566 *et seq.*

Belief that hop-growing in Mid-Kent and the Weald of Kent is, on an average of years, decidedly profitable to men of capital, *Lucas* 3691. 3725-3727. 3745. 3750. 3764, 3765——With a proper outlay of capital and proper soil there is no reason why hop-growing should not be as profitable in Sussex or the Weald of Kent as in Mid-Kent, *ib.* 3745. 3750-3754. 3775, 3776. 3784, 3785.

Tabular statement, and explanation thereon, of the expenses and receipts of witness in respect of his hops in 1855 and 1856; aggregate loss of 1,558 *l.*, *Curteis* 3920-3925——In 1855 there would have been a profit of 2 *l.* 2 *s.* 9 *d.* per cwt. on witness's hops if there had been no duty, *ib.* 3920——Large produce per acre and high price obtained by witness in 1854; it more than covered his loss in 1855 and 1856, *ib.* 3976-3985, 4107, 4108——The account is based on fifty-five acres in 1855 and fifty-nine acres in 1856, *ib.* 3922——Witness fully believes that there has been a loss on the aggregate cultivation in Sussex for the last ten years, *ib.* 4111-4116.

Opinion that on an average of years hops are more profitable than any other crop in the Weald of Sussex, *Mannington* 4996, 4997. 5010, 5011. 5035-5040——Opinion that in Sussex or the Weald of Kent hops could not be grown at a profit at less than 4 *l.* per cwt. without the duty, *Thirkell*, 5198-5207——Witness considers that his capital would have been fully as remunerative if it had been invested in hop cultivation in Sussex as in Mid-Kent, *Cutbush* 5413-5421——Belief that on an average of years hop-growing in Sussex is a profitable occupation, *Darby* 5629, 5630——If the Sussex and Weald of Kent planters find hop-growing a losing business their proper remedy is to give it up and grub their hops, *J. P. Smith* 4443. 4486-4488. 4510-4514, 4550, 4551. 4593-4600.

2. *Mid-Kent and East Kent:*

Witness, who is a grower in Mid-Kent, almost always sells when he can, and considers that hops pay about as well as anything else, *Punnett* 2353-2355——On the whole, witness, who is an East Kent grower, has made more by his hops than by anything else, *Carter* 3030-3032——Better profit on Mid-Kent hops than on Sussex hops, *Hammond*, 3193-3202. 3274-3279; *Curteis* 4095——Witness has found hop-growing in Mid-Kent to be on the whole a profitable business, *Bannerman* 4137. 4141, 4142; *Cutbush* 5315, 5316. 5341-5345; *Leney* 5428-5437——Opinion that in Mid-Kent generally hops are more profitable than any other crop, *Bannerman*, 4143. 4321.

Hop-growing in Mid-Kent and the Weald of Kent has not paid witness so well as corn-growing would have done, *Thirkell* 5227-5230——Much larger quantity of hop land now grown by witness than in 1833, notwithstanding the injurious pressure of the Excise duty, *ib.* 5264-5287.

3. *Hampshire:*

Witness, who is a grower near Farnham, has not found hop-growing profitable, but he has not grown such good hops as his neighbours generally, *Harris* 3439-3451——If the duties were abolished, Hampshire hops might be sold at a profit at 60 *s.* a cwt.; question whether the foreigner can sell at that price, *ib.* 3470-3501.

4. *Worcestershire*

Report, 1857—*continued.*

Profit or Loss of Hop-Growing—continued.

4. *Worcestershire and Herefordshire:*

Witness, who is a grower near Worcester, does not complain of his returns for hop-growing; he has on the whole found it a profitable business, else he would not have been so foolish as to continue it, *J. P. Smith* 4401–4403. 4414–4443. 4450, 4451——Belief that hop-growing has, in the aggregate, been profitable in Worcestershire and Herefordshire, *ib.* 4485, 4486.

5. *Generally:*

Belief that in the aggregate of hop-growing there is a loss, on account of the Excise duty, *Neve* 2674, 2675——The fact of a heavy outlay having been incurred, and the chance of good luck, induce perseverance, *ib.* 2739–2745——How far witness's statement as to the unprofitable character of his hop grounds may represent the case of hop-growers generally, *Hartridge* 3599–3631——Dissent from the opinion that hop-growing in the aggregate is a losing business, *Lucas* 3743, 3744; *Harryman* 6480. 6488, 6489.

Belief that hop-growing throughout the kingdom is on the aggregate profitable over an average of years; great improbability of the continued investment of so large a capital in hop grounds if they were otherwise than profitable, *Bannerman* 4138–4143. 4249–4258. 4284–4290. 4321——Planters might easily get rid of their hop-gardens if they did not care to speculate for lucky crops, *J. P. Smith* 4634——Profitable character in the long run of witness's hop plantations; belief that they are generally profitable on an average of years, *J. Selmes* 5061–5063. 5082.

Examination relative to a return, some of the figures in which were furnished by witness, showing that the average receipt of the planter for the year, 1847–56 was 25 *l.* 15 *s.* 4 *d.* per acre, after payment of 2 *l.* per acre for picking, duty, &c.; explanation showing that this return may be very incorrect, *Richardson* 6369–6388. 6392–6399.

Remarks relative to a certain return of the price of hops in the last ten years; reliance to be placed upon it, *Bass* 7560——Mr. Wigan's statement of the average prices for the last ten years is 25 *l.* 15 *s.* 4 *d.* per acre net, which is much less than what has been stated as the average cost of cultivation, *ib.*——Doubt as to the growers having been able to make much profit out of the hops sold to witness in 1856, *ib.* 7576–7577.

6. *Foreign Hops:*

The Bavarian grower gets a better profit than the English and the Belgian better than the Bavarian, *Lucas* 7245. 7369.

See also *East Kent. Farnham. Forced Sales. Full Crops. Herefordshire. Moderate Crops. Prices. Short Crops. Unpicked Hops.*

Prosecutions. Number of prosecutions since 1846 for default of payment and other offences, *Dobson* 224–226, and *App. p.* 407.

Prussia. In Prussia there are about 10,000 acres under cultivation for hops, *Whitling* 6687.

Prussian Poland. In Prussian Poland inferior hops are grown, which are not worth importing into this country, *Richardson* 6302–6307.

Punnett, Patrick Simpson. (Analysis of his Evidence.)—Hop-grower near Maidstone; has about twenty-two acres in plant, 2273–2277——Considers that the cost of cultivation about Maidstone up to the time of picking is about 26 *l.* an acre, 2279——The cost of picking, drying, and duty, &c., is from 2 *l.* 4 *s.* to 2 *l.* 6 *s.* a cwt., 2279–2290——Varying amount of the expenditure in picking, 2281–2287——Higher wages in Mid-Kent than in Sussex, 2291——The charge about Maidstone for extraordinary tithe is from 15 *s.* to 19 *s.* an acre, 2292–2297——The hop land is worth from 3 *l.* to 3 *l.* 10 *s.* an acre, 2298, 2299. 2301——From six to six and a half cwt. per acre is a fair average of the crop, 2300. 2302, 2303.

Golding's hops chiefly are grown in witness's neighbourhood, but the Grape and Jones's hop are also grown, 2304. 2314–2316——Witness sells his hops in the aggregate at an average price, without distinction of price for the different qualities, 2305–2309——Higher price of the Golding hop than of Jones's and of the latter than of the Grape hop, 2310–2313. 2317——Liability of the Golding hop to blight or mould, 2310. 2319. 2322——Better quality of the hops grown in the soil about Maidstone than of those grown in the Weald of Kent or Sussex, 2317, 2318——Increased produce of Golding's hops, the quality, however, not being so good as it was, 2320–2329.

Abundant crops as resulting in low prices and heavy duty are bad for the planters, 2330–2335. 2359–2361. 2377–2386. 2504–2507——Limit to the demand for hops in consequence of the malt tax, 2334. 2351, 2352. 2378. 2400, 2401. 2456——Amount of deterioration in the quality of hops by holding them over; it does not follow that there is any depreciation in value or price, 2336–2350. 2353–2358. 2383. 2436–2445——Witness almost always sells when he can, and considers that hops pay about as well as anything else, 2353–2355.

Report, 1857—*continued.*

Punnett, Patrick Simpson. (Analysis of his Evidence)—*continued.*

Satisfaction to the home growers if the war duty were abolished and the Customs duty retained at its present amount, 2362–2364——Approval of a graduated Excise duty, the amount per pound being increased according as the crop is diminished, so that in the aggregate the same amount may always be paid, 2365–2373——In witness's district the prices obtained have generally remunerated the planters, 2374–2376——In 1847 and 1848 the duty fell entirely upon the producer, who did not recover it in the price, 2377–2386. 2395, 2396. 2507.

Excess of produce above consumption in abundant years; the supply in fact is beyond the demand, 2378. 2382, 2383. 2398–2402——The Excise duty is so much additional in the cost of production and is recovered or not according to the price obtained, 2384–2390——The distress in 1847 and 1848 was largely but not entirely owing to the heavy duty, 2391–2396——Advantage of the duty in tending to limit the supply, 2397–2399. 2413–2415——Expediency of retaining the Customs duty even if the Excise duty were abolished, inasmuch as otherwise there would be increased and injurious competition in a market already overstocked, 2399–2407. 2412.

Grounds for the conclusion that a reduction in the price of hops is no advantage to the consumer as regards either the price or quality of beer, 2408–2411. 2513–2525——So far as Mid-Kent is concerned the duty does not tend to limit hop-growing to men of large capital or holders of large farms, 2416–2428——Examination in support of the retention of the Customs duty on hops, although the duty on barley has been taken off, 2429–2435. 2446 *et seq.*——Produce and price respectively of barley and hops in the last few years; high price of the former attributed entirely to the short supply, 2470–2499.

Witness would prefer keeping the Customs and Excise duties as they are, rather than abolish or reduce both, 2500–2503——Great increase in the import of hops since the reduction in 1846 of the Customs duty, 2508——Benefit of the Customs duty to the home grower in abundant years, when it keeps up the price, 2509–2512. 2526–2534——Remarks upon the reduction of the Customs duty in 1854; an increased quantity was not imported in consequence, nor was the price reduced, inasmuch as the brewer and the importer exclusively benefited by the reduction, 2533–2559——The reduction in 1854 was a breach of faith on the part of the Chancellor of the Exchequer, and was a great hardship upon many of the planters, 2540. 2548.

[Second Examination.]—Further statement in support of the conclusion that the Customs duty is a benefit to the home grower, 2823–2837——The Excise duty is less the cause of distress than the over-supply in proportion to the demand and the consequent low prices, 2824–2828. 2837. 2861——Witness would like to see the present Customs duty retained, and the Excise duty reduced, 2829——Reason of the great distress among the home growers when the Customs duty was higher than it now is, 2830–2837.

Information, founded on certain returns, relative to the cost of cultivation per acre respectively in the Wealds of Kent and Sussex and in Mid-Kent and East Kent; conclusion that it is less in Sussex than in the Weald of Kent, and less in the latter district than in Mid-Kent and East Kent, 2837–2870——Less cost of picking, drying, and the duty in Sussex than in Kent, 2843–2845. 2850, 2851——Less cost of growing and realising the crop in Sussex than in the Rochester collection, 2857, 2858. 2866.

Witness admits that a similar duty upon inferior-priced hops and upon high-priced hops is not in itself fair, 2864——Under an acreage duty there would be quite as much inequality as at present, 2864——Further evidence in regard to the danger of competition from foreign hops, especially Belgian hops, if there were no Customs duty; sale of Belgian hops in 1854 adverted to hereon, 2871–2899. 2949–2952.

The Excise regulations for collecting the duty are no trouble to the planters, 2900——Advantage to the foreigner in the system of his not being called upon for the duty till he sells his hops, 2900–2904——Great advantage if the bonding system were adopted in England, 2902. 2923. 2927——Witness further states that the abolition of the duties would not benefit the consumer, 2906–2909.

Further evidence in support of the proposition for a graduated duty on home-grown hops; scale proposed, and explanation thereon, 2910–2923——Opinion that the adoption of the bonding system need not be at all so expensive a matter as is estimated by Mr. Dobson, 2924–2926. 2945, 2946.

Penalty under the Packing Act in the event of false package; security also in being able to trace the hops, 2928–2931——As regards the difficulty of getting at the growers of foreign hops in the event of fraud, the absence of marking does not constitute any practical objection to purchasing such hops, 2932–2935. 2937. 2941–2944——Objects and advantages of the Marking Act as applied to home-grown hops, 2935–2940.

Doubt as to the expense of poling being greater in the Weald of Kent than in Mid-Kent or East Kent, 2947, 2948——If there were no Excise duty, the planter would lose so much less in abundant years, 2953, 2954——Better character of the Bavarian yearling hops than of English yearlings, 2955–2958——Statement in illustration of the great inequality of an acreage duty if applied to certain parishes in the Rochester collection, 2959, 2960.

Q.

Qualities of Hops. Better quality of some foreign hops than of English hops, *Reeve* 545, 546——Illustration of the reputation borne by the Kentish hops in the home market, *ib.* 549, 550——Better quality of hops in some districts where the crop is lightest, and where therefore the duty operates favourably, *ib.* 554–558. 565, 566——The Grapes and Colegates, inferior priced hops, are chiefly grown in Sussex, *Webster* 671–676——Equally good quality of many Sussex hops as of the Weald of Kent hops, *ib.* 809. 826–831. 852, 853——The best Kent hops are worth about 1 *l.* per cwt. more than the best Sussex hops, *H. Selmes* 1312–1314.

Broad line of distinction between the qualities of hops, *Tooth* 1483, 1484——Similar kinds of hops grown in the Wealds of Kent and Sussex, *ib.* 1492, 1493. 1496, 1497——Better quality generally of the inferior hops grown in Kent than of the same kind of hops grown in Sussex, *ib.* 1498, 1499. 1632–1647. 1685. 1694——Superior hops grown in Mid-Kent, *ib.* 1500——Varying quality of the Worcester and Hereford hops, *ib.* 1501–1506——The English hops at 60 *s.* would be more sought after than the Belgian or American hops at 40 *s.*, *ib.* 1757–1761.

Witness sells his hops in the aggregate at an average price, without distinction of price for the different qualities, *Punnett* 2305–2309——Higher price of the Golding hop than of Jones's, and of the latter than of the Grape hop, *ib.* 2310–2313. 2317——Better quality of the hop grown in the soil about Maidstone than of those grown in the Weald of Kent or Sussex, *ib.* 2317, 2318——Practice of witness to sell all his hops together at an average price, and not always to separate the different qualities in packing; amendment contemplated on the latter point, *Bannerman* 4168–4185. 4276–4278.

Good quality of the Mathon whites, and Cooper's whites, grown in Worcestershire; they fetch nearly as much as the Golding hops, *J. P. Smith* 4359, 4360. 4386–4389——Protection by the Excise duty to the merchant as well as the brewer, as regards the quality of the hops, *Harryman* 6497, 6498——The hops on receipt from the planters are generally sampled by the factors, and sold according to the value of the different kinds, *H. T. Smith* 5560, 5561——Better quality of the Mid and East Kent hops than of the Farnham hops, though by some the latter are preferred *Waterman* 7038.

Circumstance of the English hops having stood sixth in point of quality at the Exposition of Agriculture in Paris in 1855; doubt, however, whether England was fairly represented, *Bass* 7168. 7195. 7200——Bohemia stood first, Bavaria second, Baden third, Belgium fourth, France fifth, and England sixth, *ib.* 7168.

See also *Bavaria*, 5. *Belgium*, 2. 3. 4. *Bohemia.* *Colegate Hop.* *Deterioration.* *Golding Hop.* *Grape Hop.* *Jones's Hop.* *Marking Hops.* *Prices.*

R.

Re-dried Hops. Statement as to foreign hops having been imported in 1854, and dried in Kent and the Borough, and sold as English hops, *Curteis* 3946–3957.

Reduction or Abolition of Duties. See *Customs Duty.* *Excise Duty.* *Free Trade.*

Reeve, Lawrence. (Analysis of his Evidence.)—Hop-grower for about thirty years, at Peas Marsh, near Rye, 326–331——There is much hop land in the neighbourhood of Rye; its character and rental, 332–336. 379——Great uncertainty and expense attendant upon the cultivation of hops, 337–354——Necessity of an outlay of about 7 *l.* or 8 *l.* an acre in draining the land about Rye in order to make it fit for hop-growing, 345–353——The price of hops is lowest and the duty heaviest when there is an abundant crop, 354–361.

Necessity of a grower being a large capitalist, in order to hold over the sale, and at the same time to meet the duty, when the crop is abundant, 357–368——Depreciation and fall of price in consequence of pressure of sale to meet the duty, 369, 370. 561–564. 567——Outlay of from 10 *l.* to 12 *l.* an acre on manual labour, 371, 372——Curtailment of labour, and consequent distress, after there has been a full crop, 373–378. 382–395. 439–441——The Grape hop principally is grown by witness; his land is not suitable for the Goldings, 380, 381. 424–427——Occasional mortgage of crops in order to raise money for the duty when heavy, 382–384. 500–502.

On the wet soil held by witness a hop plantation will last about fifteen years, 396, 397——Further reference to the necessarily heavy outlay on drainage, 398–406——Witness grows from seventy to eighty acres, which is much less than he used to grow, 407–411——Acreage under cultivation in Sussex in each of the years 1837–50, and in the year 1856; decrease in the amount, 412, 413. 423——Explanation as to witness having grown hops for thirty years, though he considers that in the Weald of Kent, and Sussex generally, it has not been a profitable business, 414–419. 423, 424——Speculative character of some hop-growers, 418, 419. 479, 480.

Average expense of 24 *l.* or 25 *l.* an acre in the cultivation of hops near Rye, 420, 421. 444–446——Immense variation in the crop in different years, 435–438——Further statement as to full crops being unprofitable to the grower; how far the heavier duty on such crops may account for this, 442–451. 462 *et seq.* 551–553——Belief that the consumer of

Report, 1857—*continued.*

Reeve, Lawrence. (Analysis of his Evidence)—*continued.*

beer has never been affected by variations in the price of hops, 452–458. 559, 560——Amount of the ordinary and extraordinary tithe per acre of hops near Rye, 459–461.

Anticipated revolution in the hop-growing of this country, if foreign hops were placed in the same position as English hops in regard to duty, 473–477. 516–518——Injurious effect upon the home grower, as in witness's case, by the large importation in 1854; 474. 503–512——Remarks relative to the deterioration of hops when kept for any length of time, 481–499——Prejudicial effect upon the value of underwood if the home cultivation of hops were largely reduced, 516–518——Further statement as to the tendency to a decrease in the hop cultivation of Kent and Sussex, 519–528.

Expense of about 10 *l.* an acre in the first year of planting a hop-garden, 527——Large and favourable character of the holdings in witness's district; extent of the district, 529–535——How far the practice of hop-growers to appropriate any of the proceeds of the produce directly to the payment of the duty, 536–539——Great difficulty in some cases if the duty were required to be paid when the hops are sold, 540——Varying proportion of hop ground to other land in the several farms in the Rye district, 541, 542——Witness has never had reason to complain against the proceedings of the Excise officers in regard to the collection, 543.

Doubt whether the statistics in regard to the produce of the hop grounds are of any service to the grower, 544. 547, 548——Better quality of some foreign hops than of English hops, 545, 546——Illustration of the reputation borne by the Kentish hops in the home market, 549, 550——Better quality of hops in some districts where the crop is lightest, and where therefore the duty operates favourably, 554–558, 565, 566——Effect of the pending payment of the duty to lower the price in the market, 561–564. 567.

[Second Examination.]—The expense of drainage is from 5 *l.* to 6 *l.* an acre instead of from 7 *l.* to 8 *l.*, as before stated, 1930, 1931. 1934——Nature of the drainage carried out; it would be equally required for arable land, 1932–1937——Details showing a total of 24 *l.* 16 *s.* 6 *d.* as the cost estimated by witness for cultivating an acre of hops in Sussex, 1938–1942——Details showing a total of 1 *l.* 17 *s.* 6 *d.* as the cost per cwt. of picking, drying, cartage, duty, &c., 1940–1942.

Considerable judgment, as well as capital, is required in order to profit by hop growing, 1943——In many instances hop-growing is very speculative, 1944, 1945——Reference to returns for each of the years 1847–51 and 1856, showing a loss on the whole on hop-growing in Sussex, 1945–1975——Less produce and higher prices in the case of the Kentish hops, as compared with the Sussex hops, for each of the years 1847–51 and 1856, and consequent advantage of the Kentish growers as regards the duty, 1945–1953. 1959–1970.

Witness has not been able to procure any returns for the years 1852–1855; 1953. 1972–1975——In 1853 there probably was a profit of 27 *l.* an acre in Sussex, 1953. 1975——In 1854 witness did not get more than 10 *l.* 10 *s.* a cwt. for his hops, 1954–1958——Moderate crops are generally more profitable than large crops, 1976.

Remission of Duty. Since 1819 a moiety of the Excise duty has only once been remitted, *Pressly* 287—— Suggested remission of a half year's duty, to be followed by a system of prompt payment for the future, *Hammond* 3349, 3350; *Lucas* 3787–3791; *Leney* 5451; *Darby* 5652, 5653. 5727–5729.

Rent of Land. The rent of the land is not a fair criterion of the value of the crop; much depends upon the cultivation, *H. Selmes* 1318–1331——Rental of land in witness's neighbourhood, *Tooth* 1341, 1342; *Monckton* 2008–2010; *Harris* 3433–3436——Lower rental of the land in the Weald of Kent than near Maidstone, *Neve* 2601–2613——The ordinary rent of land in Sussex is from 10 *s.* to 20 *s.* an acre, *Mannington* 5042——The rent of witness's land, which is on the Ragstone Hills, is about 3 *l.* an acre, *Leney* 5434–5436.

Richardson, George Gibson. (Analysis of his Evidence.)—Hop merchant; deals both in foreign and English hops, 5982–5986——There are no statistics of the produce of hops in Belgium, 5987——Estimate that in full crop years Belgium produces 4,250,000 kilogrammes, or about 80,000 cwt., 5988–5991——Increased growth in Belgium of late years in consequence of the better prices, which are the result mainly of exportation to this country, 5992–5995——There is no duty on the export from Belgium, 5996——It is estimated that in the years 1853 and 1854 more than three-fourths of the Belgian hops were sent to this country, 5997.

Particulars relative to the prices of Belgian hops as obtained in the country by the growers before they are dried, &c.; reference hereon to a table showing the prices in October and March for each of the years 1830–46; 5998 *et seq.*——In Belgium the hops are dried and cured by the merchants, 6001. 6004, 6005——Way in which they are kept after picking, and before sale to the merchant, 6006. 6079. 6165, 6166——About one-third of the Belgian crop consists of the Poperinghe hop, which is of a superior quality, 6010–6012. 6028, 6029.

Since 1854 there has been hardly any export from Belgium to this country, 6017–6022. 6108, 6109——The crops in Belgium are less variable than in this country; there is less blight

Report, 1857—*continued.*

Richardson, George Gibson. (Analysis of his Evidence)—*continued.*

blight, 6023. 6027. 6141——The late variations in the price in Belgium are attributable to the English demand, 6024-6026——Evidence as to the expenses of cultivation in Belgium; difficulty of accurate calculation hereon 6030-6032. 6073. *et seq.*——About 10 *s.* a cwt. must be added to the price in Belgium as additional expense before sale in England, 6033-6038——Opinion that Belgian hops deteriorate less than English hops; system of packing and curing adverted to hereon, 6039-6053.

Estimate of about 5,660 English acres under cultivation in Belgium, 6056-6061——Nature of the facilities for increased cultivation in Belgium, and character of the present cultivation, 6062 *et seq.*——Doubt as to the effect of free trade in regard to exports from Belgium to this country; if the prices in this country were as low as they have been for the last two years, Belgian hops could not be imported profitably, but in the event of high prices and free trade considerable importation might take place, 6086 *et seq.* 6337. 6364-6368.

Witness has never seen English hops in Belgium, 6150——Has never known a short crop in Belgium, 6151——Belgian hops are used in France, where they are preferred to the English hops, 6153-6158——Witness has sent both English and foreign hops to the colonies; the former are preferred, 6161-6164. 6389-6391.

The hops imported from Germany are principally those from Bavaria, 6167——Statement relative to the average yearly price of the greater quantity of Bavarian hops for each of the years 1840-56, exclusive of the drying, packing, &c., 6168-6178. 6190——In 1855, witness could have sold Bavarian hops at an advance of twenty per cent. on the price of the best English hops; he has sold them at an advance of twenty-two per cent., but does not consider them worth the increased price, 6179-6189——To the grower's price in Bavaria must be added about fifteen per cent. as additional expense before sale in England, 6191, 6192.

There is no duty or charge of any kind upon hop-growing in Bavaria, 6193-6195——There is a duty upon imports but not upon exports, 6193. 6262——Details as to the character and cost of the cultivation in Bavaria, 6196 *et seq.* 6270-6276——Estimate of from seven to eight cwt. per acre as the average produce, 6196-6212——Estimate of about 9,000 English acres as the extent of land under cultivation in Bavaria, 6213-6218——Remunerative price to the Bavarian grower if he got 55 *s.* per cwt., 6223-6225. 6230-6232. 6337.

Less liability to blight in Bavaria than in England, 6234——The crop in Bavaria is very capricious, 6235, 6236——Particulars as to the exports from Bavaria; good hops retained in the country by the brewers, 6237-6252——Quality of the best Bavarian and Bohemian hops as compared with the best English hops; if the former are superior it is probably owing to their not being forced so much as the latter, 6253. 6264-6269——Way in which the Bavarian hops are dried and packed, 6254-6258——Less deterioration in Bavarian yearlings than in English yearlings, 6259-6261.

The best Bavarian hops are grown at Spalt, near Nuremberg, 6277-6280——Facility for extended cultivation in Bavaria, 6281, 6282——The cultivation has increased of late years, 6283——Practice in parts of Bavaria and Bohemia of marking certain hops as evidence of their being grown in good districts, 6284, 6285. 6287——Witness sells foreign hops to the brewers by sample, and has heard no complaint about their not being marked, 6286-6288. 6296-6300——The Bohemian hops are better than the Belgian, and command rather a better price than the bulk of the Bavarian hops, 6289-6291——Cost of transmission respectively from Bohemia and Bavaria to this country, 6292-6294.

In North Germany a good many hops are grown; in West Germany the cultivation is dying out, 6301——In Prussian Poland inferior hops are grown, which are not worth importing into this country, 6302-6307——Inferior hops are also grown in Brunswick, which it does not pay to import, 6308-6312——As regards the deterioration in the East Kent hops it is generally attributed to the increased produce per acre, 6315-6320.

Considerable advantage of the statistics about hops to the merchant and the grower, 6321-6327——Witness prefers the abolition of the war duty to an acreage duty, 6322.——The system of marking is very advantageous, but it would be continued to a great extent if it were not compulsory, 6328-6335——The abolition of the Excise duty would doubtless benefit the home grower, 6336——Loss to the growers by the abundant crops in 1855 and 1856; 6339, 6340——Doubt as to the amount stocked by the brewers in 1855 and 1856; 6341-6344.

Unfairness if the Excise duty were as high as the Customs duty, the former being levied on the entire produce, whether required for consumption or not, 6348-6355——Witness does not recollect having heard a Belgian merchant state that, in the event of free trade, hops could be imported from Belgium at 40 *s.* per cwt., 6356-6362——Belgian hops would probably be remunerative to the grower if they fetched from 50 *s.* to 60 *s.* in this country, 6362-6365——The cost of production and the price are about the same in Belgium and England, less the Excise duty, 6365-6367.

Examination relative to a return, some of the figures in which were furnished by witness, showing that the average receipt of the planters for the years 1847-56 was

Report, 1857—*continued.*

Richardson, George Gibson. (Analysis of his Evidence.)—*continued.*

25 *l.* 15 *s.* 4 *d.* per acre, after payment of 2 *l.* per acre for picking, duty, &c.; explanation showing that this return may be very incorrect, 6369-6388. 6392-6399.

Rochester Collection. Average produce per acre in the Rochester collection in each of the years 1847-51 and in 1856, *Reeve* 1947.

Number of planters in the collection in each of the years 1847-56, *App. p.* 407.

See also *Mid-Kent.*

Rye. There is much hop land in the neighbourhood of Rye; its character and rental, *Reeve* 332 *et seq.*——The Grape hop is principally grown by witness; his land is not suitable for Goldings, *ib.* 380, 381. 424-427——Large and favourable character of the holdings in witness's district; extent of the district, *ib.* 529-535——Varying proportion of hop ground to other land on the several farms in the Rye district, *ib.* 541, 542——Greater exemption from blight of the land about Rye of late years, *H. Selmes* 1279-1283——Good character of witness's hop land near Rye, *Curteis* 3814-3816—The hops grown by witness are the Grape and Jones's, *ib.* 3827, 3828.

S.

St. John, Frederick. (Analysis of his Evidence.)—Surveyor-General of Customs in London, 7453——Reference to a return (*App. p.* 408) showing the quantities of foreign hops imported from certain countries in each of the years 1847-56; also the rates of duty per cwt., 7454-7456——Return (*App. p.* 409, 410) relative to exports in each of the years 1847-56; 7454-7456——Return (*App. p.* 408) showing the quantities imported and exported in each of the years 1837-56; also the declared value of beer and ale exported, 7457, 7458.

The drawback allowed upon beer exported is considered equivalent to the duty upon the malt and hops used in it, 7459, 7460——Allowance to be made in calculating the quantity of exported hops for the quantity in exported beer, 7461-7463——Reference to the alterations which have taken place in the amount of the Customs duty, 7464-7467——The amount of tare allowed upon imports varies very much, 7468——Probable cause of a certain exportation to the Hanse Towns, 7469.

Considerable importation would have taken place in 1854, without the reduction of the duty, 7470——Tendency of the reduction to cause an increased importation, 7471-7473. 7478——Circumstance of English hops having been exported for the sake merely of the drawback, and then thrown away; check exercised by the Customs hereon, 7474-7477——Greater export of hops, including exported beer, than import, 7478, 7479——Belief that the Customs duty does not act as a prohibitory duty upon the finer qualities of hops, 7480, 7481.

Sales. See *Disposal of Crop. Factors. Forced Sales. Merchants.*

Selmes, Henry. (Analysis of his Evidence.)—Has been a hop-grower all his life, 1214-1219——Approval of an acreage duty in preference to the present system of levying the duties, or to any interference with the Customs duty, 1220-1229. 1237-1243. 1254-1258. 1260 *et seq.*——In preference, however, to an acreage duty, even of only 3 *l.*, witness advocates the abolition of what is called the war duty, leaving the duty at 1 *d.* a pound, 1221-1224. 1230-1236. 1258, 1259——Grounds for the apprehension of injurious foreign competition if the Customs duty be reduced or abolished, 1236-1253. 1260, 1261.——Witness has paid on the average more than 6 *l.* 10 *s.* an acre in duty, 1254-1257. 1302.

A reduction of the duty would not affect the consumer, 1262, 1263——The lands producing most hops are now most heavily taxed, the inferior hops giving generally the largest crops, 1264-1270——The present duty is in favour of those who grow small crops of the higher priced hops, 1266-1271. 1311——Witness's land is near Udymer and Rye; character of the land, 1275-1278——Greater exemption of the land about Rye from blight of late years, 1279-1283.

Reported deterioration in the quality of the Sussex hops through the increased quantity produced, 1284, 1285——Doubt as to the cattle fairs being injuriously affected at the time of the payment of the hop duty, 1288, 1289——Large produce per acre on witness's hop land, 1290-1293——Varying rental of hop land in Sussex, 1295-1298——Doubt as to the fairness of an equal acreage duty upon lands of different value, 1299-1311——The best Kent hops are worth about 1 *l.* per cwt. more than the best Sussex hops, 1312-1314——An ad valorem duty would be the fairest, but it is not practicable, 1315-1317——The rent of the land is not a fair criterion of the value of the crop; much depends upon the cultivation, 1318-1331.

Selmes, James. (Analysis of his Evidence.)—Cultivates about forty acres of hops in Northiam parish, on the borders of Kent and East Sussex; only a small portion of the land is in Kent, 5043-5048——The hops marked as Kentish hops generally fetch 2 *s.* or 3 *s.* more per cwt. than those grown within the Sussex border, although the latter are the better of the two, 5049-5054——Character of the soil of witness's land, 5055, 5056——The rent is about 1 *l.* an acre, 5057——Different hops grown by witness; the Golding hop cannot be cultivated to advantage, 5058-5060.

Profitable

Report, 1857—*continued.*

Selmes, James. (Analysis of his Evidence)—*continued.*

Profitable character, in the long run, of witness's hop plantations; belief that they are profitable generally on an average of years, 5061–5063. 5082——The Excise duty is no benefit to the grower, and in abundant years is very oppressive, 5064–5067. 5077——The Customs duty is a great benefit to the home grower, and its reduction or abolition might be very injurious, 5064. 5068–5075. 5085——Witness would like to see the Excise duty lowered by the amount of the war duty, and the Customs duty retained at its present amount, 5077. 5083–5085——An acreage duty would operate very unequally and unfairly, 5078–5081.

Short Crops. A short crop generally is preferred by the hop growers, *Dobson* 246–249——The present duty is in favour of those who grow small crops of the higher priced hops, *H. Selmes* 1266–1271. 1311——Short crop years are advantageous to those who grow crops in those years, but in some cases there is a total blight, *Harryman* 6477–6479——Very large net produce to the grower in 1853 and 1854, as compared with the net produce in full crop years, *Bass* 7560.

Sliding Scale. See *Graduated or Sliding Scale.*

Small Growers. Tendency of the duty to militate against small growers as compared with capitalists, *Pressly* 101–104. 118–123——Inability of the small planters to obtain relief from the Legislature, whilst the large planters may be well content with the present system, *Thirkell* 5121.——*See* also *Excise Duty*, 2.

Smith, Adam. Views of Adam Smith adverted to in support of the conclusion that the hop duty is paid by the consumer, and that beer is a luxury, not a necessary of life, *Bannerman* 4214–4219. 4231–4239.

Smith, Henry Tilden. (Analysis of his Evidence.)—Partner in the firm of Pattenden & Smith, hopfactors, 5537, 5538——The business of the firm, as factors, is confined to selling for the grower to the merchant on commission; they have scarcely any dealings with brewers, 5538, 5539. 5579, 5580. 5587. 5595, 5596——The firm occasionally purchase hops for the supply of their customers, 5540–5543——Particulars as to the commission charged per pocket or bag; scale of charge in proportion to the price, 5544–5553——The charge for warehousing and insurance is a penny per pocket, and three half-pence per bag per week, 5554, 5555.

Each factor's business is generally confined to a particular district, 5556–5559——The hops on receipt from the planters are generally sampled, and sold according to the value of the different kinds, 5560, 5561——Prices and value respectively of the hops of East Kent, Mid-Kent, the Weald of Kent, and Sussex, 5562–5572——Practice of country merchants and brewers generally to buy from the factors in the London market, 5573–5578.

The great majority of the Worcestershire hops are sold at Worcester; a portion are bought by the London merchants or factors, 5581–5584——The Farnham hops are chiefly sold at Weyhill fair, which is attended by factors or merchants from London, 5585, 5586——Short credit between the factors and the merchants, 5588, 5589——Occasional applications from the growers to the factors for loans previous to the payment of the duty, more especially in abundant years, 5590–5593——It would be altogether out of the brewer's line of business to deal directly with the grower, 5594.

[Second Examination.]—Further statement that the business of witness's firm lies with the grower and merchant, and not with the brewer, 5742, 5743——Tabular statement showing the average of hops, the average growth per acre, and the average price in each of the years, 1835–56; authority for this statement, 5744–5751——Unusually large importation of foreign hops in 1854; 5752–5754. 5778, 5779——Impression as to the injurious effect of the foreign hops of 1854 upon the quality of the beer in that year, 5753. 5789–5796——Great depreciation in prices after the foreign imports in 1854; in four or five months Sussex hops fell 50 per cent., 5755, 5756. 5778–5788.

In the years ending March 1856 and March 1857 there were imported respectively 21,780 cwt. and 11,262 cwt., 5757–5759——Large quantity of English hops unconsumed out of the over produce in 1855 and 1856; 5760–5763——Concurrence in the evidence of Mr. Darby as to the effect of the malt duty in limiting the consumption of hops, 5764——Better quality of the Bavarian hops than of the best English hops, 5768. 5797——Speedier deterioration in the case of foreign yearlings than of English yearlings, 5769–5771——The American hops are very rank, 5774——The Belgian hops are not so good as the English; they are not cured so well, 5775–5777. 5797. 5804——Apprehension of foreign competition if there were free trade, 5798–5800——In large crop years the duty has the effect of pressing sales, 5801–5803.

Smith, John P. (Analysis of his Evidence.)—Cultivates fifty acres of hop land near Worcester, 4347–4351——Large produce per acre grown by witness in 1846 and 1855; his produce generally is above the average, 4352–4355. 4361–4364——Different qualities of hops grown by witness. 4356–4360. 4386–4389——Character of the soil of witness's hop land, and of the cultivation bestowed upon it, 4362–4364. 4372–4381. 4517–4526. 4529, 4530——Decrease of the practice, in Worcestershire, of growing hops in orchards:

Report, 1857—*continued.*

Smith, John P. (Analysis of his Evidence)—*continued.*

improved system of cultivation, 4365-4371. 4404. 4409——Witness, who is a merchant as well as a planter, generally sells his hops to Mr. Bass, 4382-4385.

Few Colegate hops grown in Worcestershire, 4389—— Advantage if such large quantities of Colegates, which are a very bad class of hop, were not produced in Kent and Sussex, 4389-4401——Witness does not complain of his returns for hop growing; he has found it on the whole a profitable business, else he would not be so foolish as to continue it, 4401-4403. 4410. 4443. 4550, 4551——Slight diminution, if any, in the extent of hop land under cultivation in Worcestershire, 4405-4409.

Absence generally of complaint in Worcestershire against the Excise duty; reference hereon to some distress among the Worcestershire and Herefordshire planters in 1848 and 1849; 4411-4440. 4550——The present distress in Sussex and the Weald of Kent is clearly attributable to the over-production, 4441, 4442. 4487-4496. 4550. 4597——If the Sussex and Weald of Kent planters find hop-growing a losing business their proper remedy is to give it up and grub their hops, 4443. 4486-4488. 4510-4514. 4550, 4551. 4593-4600.

Apprehension of injurious competition on the part of Bavaria and Belgium, if the Customs and Excise duties were abolished; grounds for this conclusion, 4444 *et seq.* 4554-4566——Effect of free trade to drive a large quantity of hop land out of cultivation, 4450. 4484——Belief that hop growing has in the aggregate been profitable in Worcestershire and Herefordshire, 4485, 4486——Much greater proportion of hop land in Kent and Sussex than in Worcestershire, 4491-4494——Doubt whether hops can be grown more profitably in Worcestershire than Sussex: cost of cultivation, produce, and price in each county adverted to hereon, 4495. 4515-4546.

Belief that the hop duty does not press upon the planter, but is paid by the consumer, 4496-4500——In consequence of the duty the consumer pays about 1 *s.* on every 100 gallons of beer, 4501-4503——Witness would rather pay double duty than have free trade, 4504-4507. 4549——A graduated scale of duty would create much trouble and inconvenience, 4508, 4509——Approval of the present periods of payment of the duty 4527, 4528. 4640-4643——As regards a statement that the average price of Sussex hops for the last ten years has been under 3 *l.*; witness does not believe the price has been so low, 4540. 4547-4550. 4584-4587.

There are more Sussex hops, but not more Worcester hops in the market than there is demand for, 4550——The abolition of the war duty would satisfy the great majority of the planters, 4552——Deterioration of late years in the Golding hop from over produce, 4554, 4555——Almost imperceptible benefit to the consumer if the duty were abolished, 4567-4582——The estimate of the duty for the present year is now from 120,000 *l.* to 130,000 *l.*; 4583.

Importance of hop planters being men of capital, 4588, 4589. 4636-4639——Want of unanimity among the Sussex and Weald of Kent planters in regard to the advantage of free trade, 4601, 4602. 4616-4619——Practice in Worcestershire to sell the hops to merchants at Worcester fair, 4603-4609——The factors are paid by commission by the cwt. or the pocket, 4610-4613——In Worcestershire the different kinds of hops are distinguished by numbers, 4615——Protection afforded by the marking system, 4620 4621.

Lower extraordinary tithe in Worcestershire than in Kent or Sussex, 4622-4624—— Advantage to the Worcestershire planters in not having had very large crops in 1856; 4625-4631——Unanimous feeling in Worcestershire in favour of a continuance of the Customs duty, 4630. 4632——Planters might easily get rid of their hop-gardens if they did not care to speculate for lucky crops, 4632-4634.

Smith, Tilden. (Analysis of his Evidence.)—Partner in the Hastings Bank; has been a hop grower for thirty-five years, 901-906——Greater demands for accommodation on witness's bank on the part of hop growers, and greater distress throughout the district, in years when there have been full crops and large amounts of duty to meet, than in years of small or average crops, 907 *et seq.* 1054-1057. 1122-1127——The fact of the heavy duty having been so well met for the last two years is attributable to the good prices obtained by the farmer for his other crops, 938——After the hops have been sent to the factors, accommodation before sale is received from them rather than from local banks, 943, 944.

In holding over his hops the grower does not necessarily speculate, 945——Slight expense in warehousing, 946——Practice as to the deduction of weight by the factors after the hops have been for a certain time in their warehouses, 947-957——Large portions of the year's crop are often held over till Christmas, 958-961——Opinion that the manual labour in cultivating hop grounds comes to about 15 *l.* an acre, 962-964. 972 ——Probable amount of labour employed upon the Sussex hop grounds, 965-971.

Evidence to the effect that hop growing in Sussex is not on the whole a very profitable occupation; capitalists do best, but many lose whilst others gain, 973-1014. 1107-1110. 1132-

Report, 1857—*continued.*

Smith, Tilden. (Analysis of his Evidence)—continued.

1132–1136——Advantage to the grower if he were not compelled to borrow money or force sales in order to meet the duty, 1015, 1016——Opinion that if the Customs and Excise duties were repealed the home grower could still compete with the foreigner, and would, on the whole, be better off than at present, 1017 *et seq.*——Sussex hops could probably be sold at a profit at 60 *s.* per cwt. if there were no duty, 1028, 1029. 1074. 1107–1110.

In 1848 the duty on Sussex hops amounted to 50 per cent. on the value, 1058–1060 ——Larger produce per acre in the case of the Sussex hops, which are low in price, than of the Kentish hops, which are of a superior kind, 1061–1063 ——Reference to a memorial from the Sussex hop planters to the Treasury in January 1857, showing that Sussex pays a much larger per centage in duty upon the value of the crop than Kent pays: examination hereon, 1066–1073. 1084–1106.

Advantage to the grower in ample time being allowed for the payment of the duty, 1075–1083——Objection to a similar acreage duty upon the low rented lands in Sussex as upon the high rented lands in Kent, 1093–1106. 1111——Witness would decidedly prefer a reduction of the duty to 1 *d.* per pound to an acreage duty, 1112, 1113——Advantage of the statistics of produce to hop growers, 1114–1118——An acreage duty of between 6 *l.* and 7 *l.* would be required to pay the average revenue for the last ten years, 1119–1121——Pressure of sales of live stock in order to meet the duty, 1122–1125——How far the necessary payment of the duty may have had any effect as regards the fewer cattle reared of late years, 1128–1131——In 1855 Sussex hops sold at from 35 *s.* to 70 *s.* per cwt., 1137.

Consideration of the practice of requiring hop pockets to be marked with the name of the parish whence they come: doubt as to the expediency of the practice, 1138 *et seq.* ——Golding hops are better grown in Kent than in Sussex, and fetch a higher price, 1168–1178——Further opinion as to its being unfair to tax equally the low priced hops of Sussex and the high priced hops of Kent, 1179, 1180. 1201–1209——Advantage of some distinguishing mark of the seller in the event of false package, 1188–1196——Witness has never heard any Chancellor of the Exchequer approve of the principle of the hop duty, 1210–1213.

Spalt Hops. See *Bavaria.*

Speculation. In many instances hop growing is very speculative, *Reeve* 418, 419. 479, 480. 1944, 1945——Considerable judgment, as well as capital, required in order to profit by hop growing, *ib.* 1943——*See* also *Area of Cultivation. Holding Over.*

Statistics. Doubt whether the statistics in regard to the produce of the hop grounds are of any service to the grower, *Reeve* 544. 547, 548——Advantage of the statistics of produce or duty, *T. Smith* 1114–1118; *Richardson* 6321–6327——Advantage of the earlier publication of the returns, *Harryman* 6456.

Sulphured Hops. Consideration of the effect of sulphuring hops, as was the case with some sold in 1855 at 35 *s.* a cwt.; how far it is considered injurious to the beer, *Evans* 5962–5974. 5977, 5978——Doubt whether sulphured English hops would be seized by the Belgian authorities; the brewers would not use them, *Waterman* 6903–6905.

Surrey. See *Farnham.*

Sussex. Acreage under cultivation in Sussex in each of the years 1837–1850, and in the year 1856; decrease in the amount, *Reeve* 412, 413. 423——Better character of the soil near Canterbury and Maidstone, than of the soil in Sussex for the production of hops, *Webster* 826–835; *Neve* 2567–2570. 2584–2591——Reference to a memorial from the Sussex hop planters to the Treasury in January 1857, showing that Sussex pays a much larger per-centage in duty upon the value of the crop than Kent pays; examination hereon, *T. Smith* 1066–1073. 1084–1106——Opinion as to its being unfair to tax equally the low priced hops of Sussex and the high priced hops of Kent, *ib.* 1179, 1180. 1201–1209.

Reported deterioration in the quality of the Sussex hops through the increased quantity produced, *H. Selmes* 1284, 1285——Average produce of 11 ¼ cwt. per acre in Sussex in 1856, *Tooth* 1494, 1495——Less produce and higher prices in the case of Kentish hops as compared with the Sussex hops, for each of the years 1847–51, and 1856, and consequent advantage of the Kentish growers as regards the duty, *Reeve* 1945–1953. 1959–1970——Average produce per acre in Sussex in each of the years 1847–51, and in 1856, *ib.* 1945–1947——Witness has not been able to procure any returns for the years 1852–55, *ib.* 1953. 1972–1975.

Less cost of growing and realising the crop in Sussex than in the Rochester collection, *Punnett* 2857, 2858. 2866——In Sussex the farmers cultivate more hop ground in proportion to their holdings than is the practice of farmers in East Kent; hence the greater distress and complaints of the farmer in times of superabundant crops, *Carter* 3012. 3064—— Facilities for growing hops on much of the land in Sussex, *ib.* 3065–3067——

Report, 1857—*continued.*

Sussex—continued.

Many growers in Sussex have not capital enough to cultivate properly, *Kenward* 3100, 3101.

General feeling of Sussex planters in favour of free trade, though, if possible, they would like to have the Customs duty retained, *Curteis* 4098-4101——If the cultivation were the same in Sussex and East Kent, the duty would not press unevenly as at present, *Thirkell* 5239.

Number of planters in Sussex in each of the years 1847-56, *App. p.* 407.

See also *Acreage Duty*, 3. 5. *Battle. Bavaria*, 11. 12. *Belgium. Capital of Hop Growers. Colegate Hop. Cost of Cultivation. Customs Duty*, 2. 3. *Distress. Excise Duty. Forced Sales. Free Trade. Fuel. Prices. Profit or Loss of Hop Growing*, 1. 5. *Qualities of Hops. Rye.*

T.

Taylor, William. (Analysis of his Evidence.)—Cultivates twenty-four acres of hop land in Herefordshire, 4644-4647——Fully concurs in the views of Mr. J. P. Smith in favour of a continuance of the Customs' duty, 4648 *et seq.*——The Excise duty is no oppression to the planters, and coupled with the Customs' duty, is beneficial to him rather than otherwise, 4653. 4711-4723. 4814-4823——The duty falls upon the consumer, but the effect is very trifling indeed, 4654, 4655. 4720-4723——If there were free trade the foreigner would be able successfully to compete with the home grower, 4656, 4657. 4691-4693. 4752-4755——The effect of free trade would be to drive land out of cultivation and to curtail employment, 4658-4660.

Profitable character of hop growing in Herefordshire for the last ten years; witness has found hops more profitable than any other crop, 4661-4672. 4675-4685. 4696-4710. 4737-4739——Facilities for extended cultivation in Herefordshire, if the land in Sussex were grubbed, 4673-4675——General distress in Hereford in 1848 and 1849, which led the planters to seek for the non-exaction of the duty, 4676-4684. 4698-4710——Witness is fully satisfied with the present amount and mode of collection of the duty; a similar feeling is general among the Herefordshire planters, 4686-4690. 4697. 4750-4756.

The rent of witness's hop land is from 1 *l.* to 1 *l.* 10 *s.* an acre, 4694. 4771. 4774——Average produce of from 10 to 12 cwt. per acre, 4695——Opinion that cultivation would not be much, if at all, extended, if the duty were abolished, 4723*. 4816, 4817——Doubt whether there has been any diminution of late years in the area of hop land in Herefordshire, 4724, 4725——In 1855 and also in 1854, witness grew a very large crop per acre, but in 1856 his produce and that of many of his neighbours was affected by a blight, 4726-4736.

The cost of cultivation of witness's land is 18 *l.* 19 *s.* per acre; items of this cost, 4740-4742. 4805-4810——The drying and picking come to from 22 *s.* to 25 *s.* per cwt., 4741——Similar price generally of the Herefordshire and Worcestershire hops, 4743——Doubt whether hop growing in Hereford can be profitable, if the average produce be only 4 ¼ cwt. per acre, 4744-4749——Practice in Hereford to sell the hops to merchants at the Worcester or Hereford markets; difficulty experienced by witness in an attempt to sell some hops through a broker in the Borough, 4757-4770. 4784-4804. 4830-4834.

Amount of the tithe charge on witness's land, 4772, 4773——Character of the soil, 4775——Different kinds of hops grown in Herefordshire; there are no Goldings and but few Colegates, 4776-4778. 4825-4829——Hops in Hereford are now rarely planted among young trees or orchards, 4779-4782——The plantations last twenty or thirty years, and sometimes much longer, 4811——Protection to both buyer and seller by the system of marking, 4813, 4814——Advantage of the credit in the payment of the duty in the case of small capitalists, 4818-4820——Witness looks upon the duty as a fixed charge in the cost of cultivation, 4821-4823——Foreign hops have been sold in witness's neighbourhood; their price and quality, 4835-4839.

Thirkell, George Oyler. (Analysis of his Evidence.)—Cultivates about 120 acres of hop land in Mid-Kent, and about 80 acres in the Weald, 5086-5090——Calculates that the cost of cultivation per acre is 24 *l.* in Mid-Kent and 27 *l.* in the Weald, 5091-5104——Does not approve of the present scheme of duties, nor yet of free trade, 5105-5108——Would like to see the Excise duty abolished and the Customs' duty retained or increased, 5109-5111. 5114-5117. 5211-5216——Considers that a 3 *l.* acreage duty, in lieu of the Excise duty, would be beneficial to the planters generally, 5112, 5113. 5122, 5123. 5145-5151. 5254-5263——A 6 *l.* acreage duty would be much too high, 5118-5121. 5257, 5258.

Inability of the small planters to obtain relief from the Legislature, whilst the large planters may well be content with the present system, 5121——Monopoly or advantage of many of the large planters as living in districts where small and valuable crops, instead of large and cheap crops, are produced, and in thus paying smaller amounts of duty,

Thirkell, George Oyler. (Analysis of his Evidence)—*continued.*

duty, 5124-5145——Injury to the land under cultivation for wood land, if the hop land were thrown out of cultivation, 5152-5172.

Apprehension of injurious foreign competition if both the Customs and Excise duties were repealed, 5173 *et seq.*——Witness considers that the reduction of the Customs duty in 1854 led to a reduction of prices and robbed him of about 5,000 *l.*, 5175-5185——Much less cost of production in Belgium than in Kent or Sussex, 5186-5207——The Excise duty is no benefit to the planter, and in abundant years is a great burden to him, 5211, 5212. 5231-5238——Witness would rather pay some duty than have free trade in hops; he disapproves of free trade in corn, 5213-5226.

Hop-growing has not paid witness so well as corn-growing would have done, 5227-5230——During the last few years the planters in Sussex and the Weald of Kent have lost the duty altogether, 5238——If the cultivation were the same in Sussex and East Kent, the duty would not press unevenly as at present, 5239——Cause of the better position of the East Kent planters than of the Sussex planters in not losing the duty for the last few years, 5239-5249——Peculiar soil required for the Golding hop, 5250-5253.

More valuable crops produced on the better lands, 5260-5263——Much larger quantity of hop land now grown by witness than in 1833, notwithstanding the injurious pressure of the Excise duty, 5264-5287——Increase or decrease in the acreage generally, accordingly as prices have been remunerative or otherwise, 5288-5295.

Tithes. Amount of the ordinary and extraordinary tithe per acre of hops near Rye, *Reeve* 459-461——Remarks relative to the extraordinary tithe rent-charge upon hops; it varies from 14 *s.* to 18 *s.* an acre, *Webster* 886-897——Amount of the extraordinary tithe in Staplehurst and Marden; there is no extraordinary tithe in Cranbrook, *Tooth* 1343-1348——Amount of the extraordinary tithe rent-charge at Bromley, *Monckton* 2011-2013——The charge about Maidstone for extraordinary tithes is from 15 *s.* to 19 *s.* an acre, *Punnett* 2292-2297——In the Weald of Kent there are not many parishes where there is any extraordinary tithe; amount of the charge where levied, *Neve* 2785-2788——Large amount paid for tithes in some parishes in East Kent, *Carter* 2977.

The extraordinary tithe is 10 *s.* per acre in some parishes about Farnham, and 13 *s.* 4 *d.* in others, *Harris* 3437, 3438——Large amount paid in extraordinary tithe adverted to as sufficient of itself to call for some Customs duty as a counterbalance, *Hartridge* 3523. 3525-3529——The extraordinary tithe in Hunton is 15 *s.* an acre, *Bannerman* 4275——Lower extraordinary tithe in Worcestershire than in Kent or Sussex, *T. P. Smith* 4622-4624——Amount of the tithe charge on witness's land in Herefordshire, *Taylor* 4772, 4773.

Witness pays 30 *s.* per acre as extraordinary rent-charge, and 12 *s.* as ordinary charge, near Farnham, *Nichols* 4914. 4956——The extraordinary rent-charge in Yalding is 17 *s.*, and in Teston 16 *s.*, *Cutbush* 5313——Explanation relative to the assessment of the extraordinary title on hops, to the effect that it is not always a fair indication of the value of the crop, *Darby* 5731-5733——Reference to the very high extraordinary tithe in Kent, as a great tax upon the planters, *Nash* 7136. 7142, 7143.

Tooth, Robert. (Analysis of his Evidence.)—Has been a hop merchant for forty years; also holds some hop land at Cranbrook, Staplehurst, and Marden, 1332-1335. 1474-1476——Character of the hop land in the Weald of Kent as compared with that in the Weald of Sussex, 1336-1338——Calculation that in the Weald of Kent the expense of cultivation, &c. per acre varies from 15 *l.* to 30 *l.*, and averages 22 *l.*; this includes every expense save the picking, drying, and duty, 1339, 1340. 1350 *et seq.*——Rental of the land in witness's neighbourhood, 1341, 1342——Amount of the extraordinary tithe in Staplehurst and Marden: there is no extraordinary tithe in Cranbrook, 1343-1348.

Less expense of cultivation in the Weald of Sussex than in the Weald of Kent, 1349. 1400-1411——Varying amount expended in cultivation accordingly as the quality of the soil varies in regard to its capabilities of production, 1354-1419——Great difference in the expense of poling accordingly as longer or shorter poles are used, 1384-1396——There is a large quantity of inferior hop land in the Weald of Kent which does not justify heavy expenditure, and where inferior hops only are produced; this land would hardly produce corn at all, 1377-1399. 1413. 1415-1427——Opinion that the planter does not make any profit out of the very inferior land, 1419. 1425-1427.

The long credit in regard to the payment of the duty is an inducement to continued cultivation, 1428——Independently of the yearly expense of 22 *l.* per acre for cultivation there is a preliminary expense of about 10 *l.* an acre in rearing each plantation, 1429-1436——Great variation in the produce of witness's land in 1854 and in 1855; 1437-1442——Great variation in the price in 1854 and in 1855; 1443-1452. 1592-1594——Witness lost by his hops in 1854 and 1855, but lost most in 1855; 1453-1459——Pressure of sales and lower prices in consequence of the necessary payment of the duty,

Report, 1857—*continued.*

Tooth, Robert. (Analysis of his Evidence)—*continued.*

1460–1462. 1595–1609. 1727–1729——The grower is at times obliged to sell at prices so low that he does not recover the amount of duty, 1463–1465. 1608.

Calculation that in the years 1855 and 1856 a portion of the planters lost from 500,000 *l.* to 600,000 *l.*; 1465–1477. 1613–1631. 1703–1709. 1716. 1806–1812——Average produce of 13 cwt. per acre in 1855, and of 9 cwt. in 1856; 1467–1473——Prices obtained in 1855 and 1856; 1473–1477. 1618–1631——Whilst the growers of the inferior hops in 1855 and 1856 lost all the duty, the growers of the finer and dearer but less productive hops realised the duty and a profit as well, 1476, 1477. 1718, 1719. 1808–1810——Unequal bearing of the duty upon the high priced and upon the low priced hops, 1477–1482. 1703–1707. 1716–1723. 1806–1812.

Broad line of distinction between the qualities of different hops, 1483, 1484——Belief that in the event of free trade the Belgian or American hops would not displace the hops of the Weald of Kent and Sussex; grounds for this conclusion, 1484. 1710–1716. 1738–1766. 1780–1782. 1795–1803——Practice in regard to purchases by the brewers from the hop merchants; the former generally have confidence in the latter, and buy by sample, 1485–1491. 1534–1544. 1572–1574.

Similar kinds of hop grown in the Wealds of Kent and Sussex, 1492, 1493. 1496, 1497——Average produce of 11½ cwt. per acre in Sussex in 1856; 1494, 1495——Better quality generally of the inferior hops grown in Kent than of the same kind of hops when grown in Sussex, 1498, 1499. 1632–1647. 1685. 1694——Superior hops grown in Mid-Kent, 1006——Varying quality of the Worcester and Hereford hops, 1501–1506——The average produce of the Weald of Kent for the last seven years has been about 8 cwt. per acre, 1507——Average of about 6 cwt. per acre as the produce of Goldings, &c., in Mid-Kent, 1508, 1509. 1564–1568.

Particulars as to the produce of East Kent; increased produce of the Jones's hops, without any increase of the Goldings or better hops, 1510–1523. 1557–1563. 1569, 1570——Increased consumption of the best hops; this is partly explained by the importation of Bavarian hops, 1516, 1517. 1524–1544——The Bavarian hops cannot be relied upon for supplying the place of the best Kent hops, 1532. 1555, 1556——Consideration of the practice of marking; doubt as to its being expedient or of much use in preventing fraud, 1545, 1546. 1638 *et seq.*

The generality of the planters in the Weald of Kent are men of capital, 1547. 1550——Disadvantage to small capitalists in not being able to hold over their hops when prices are unduly low, 1549–1554——Extent to which hops deteriorate by keeping, 1575–1591——Belief that the Customs duty on foreign hops is no advantage to the English grower, 1610. 1612. 1709. 1716. 1733——The Excise duty should be removed, 1611——The Golding hops of East and Mid-Kent are worth 50 per cent. more than the Grape hops grown in the Wealds of Kent and Sussex, 1699–1702. 1724–1726.

In abundant years the Excise duty is a loss, whilst the Customs duty is no protection, 1708 *et seq.*——Witness has grown hops for seven years, and has lost money by them, 1710–1712. 1917–1925——Opinion that if there were no Excise duty, hops might be sold at a profit at 60*s.* a cwt., 1713–1716. 1804——Successful competition abroad of English hops with foreign hops adverted to in support of the conclusion that free trade would not injure the home grower, 1716. 1730–1732. 1734. 1736. 1929.

Panic at first and reduced plantation if there were free trade in hops, 1733. 1740–1744. 1928, 1929——Expected competition between the Bavarian hops and the best hops of East and Mid-Kent, in the event of the abolition of the duties, 1738, 1739. 1767–1779. 1788–1794——Eventually the result of free trade would be beneficial rather than injurious to the English grower, 1740 *et seq.*, 1928, 1929——Unless at very high prices, foreign hops cannot now be imported profitably, 1783–1803——Question as to there having been a loss on the aggregate produce in 1855 and 1856; 1804–1810.

Immaterial effect of the price of hops upon the price of beer, 1813–1816——Complaints of the quality of beer when hops have been dear; doubt hereon as to the use of substitutes, 1817, 1818. 1825–1830——Increased consumption of hops, more especially of best hops, in beer, 1819–1825——False packing of hops is not now much resorted to, 1831, 1832——Effect of the duty to increase the risk and losses of hop-growing, 1833–1837——Consideration of the practice of betting, as connected with the duty; incidental advantage of the practice, though in itself an evil, as showing the public opinion in regard to the probable amount of the crop, 1838–1881.

Practice formerly of the country merchants, and more recently of the London factors, to advance money to the growers towards the payment of the duty, 1882–1892. 1900–1905——Sussex and the Weald of Kent are the districts in which the planters lose most frequently by the crops, 1893–1897——Decrease of late in the acreage under plantation, 1898, 1899——The pressure as regards the duty is peculiarly heavy at the present time, 1903——Large as well as small capitalists lose the amount of the duty when prices are very low, 1906–1911.

Danger of increased loss from the power of borrowing from the factors, in order to hold

Report, 1857—*continued.*

Tooth, Robert. (Analysis of his Evidence)—*continued.*

hold over for better prices, 1912-1916——Witness has grubbed a large portion of his plantation, 1920-1922. 1925——His father as well as himself lost money in the long run by hop-growing, 1923, 1924——In the event of free trade, witness would not further decrease his plantation, 1926——It requires a capital of about 50 *l.* an acre for every additional acre of hop ground, 1927.

U.

Udymer (Sussex.) Peculiar advantage of the parish of Udymer, near Rye, as regards exemption from blight, *Webster* 659-662.

Underwood. Prejudicial effect upon the value of underwood, if the cultivation of hops were largely reduced, *Reeve* 516-518; *Lucas* 3711-3725; *Thirkell* 5152-5172; *Culbush* 5405-5407; *Darby* 5626.

Unpicked Hops. It has been said that hops were left unpicked in Sussex in 1855 in consequence of the low price, *Webster* 654-656——In 1856 and other years witness has left hops ungathered, as not being worth the expense of picking, drying, and duty, *Neve* 2655-2665. 2694——Instance of hops being left ungathered in Sussex, *Curteis* 4096, 4097.

W.

Wages. Higher wages in Mid-Kent than in Sussex, *Punnett* 2291——High wages in some parts of East Kent, *Carter* 2988-2990——Rate of wages in Mid-Kent, *Bannerman* 4155-4157——The wages in Herefordshire are now from 2*s.* to 2*s.* 6*d.* a day, *Taylor* 4810.

War Duty. See *Excise Duty*, 1. 4.

Warehousing. Necessity of the grower sending his hops to the factor through the want of proper buildings for keeping them, *Webster* 664, 665——Slight expense in warehousing, *T. Smith* 946——Very few planters in Sussex have the means of warehousing their crops, *Curteis* 3835. 4024-4026——The factor's charge for warehousing and insurance is 1*d.* per pocket, or 1½*d.* per bag per week, *H. T. Smith* 5554, 5555.

Waterman, Thomas. (Analysis of his Evidence.)—Hop merchant; deals in Bavarian and Bohemian, as well as in English hops, 6827-6831——Had a few consignments of American hops in 1854, but they were sold at a loss, 6832, 6833. 6836-6838——Very objectionable flavour of the American hops; obstacle thereby to their competing with English hops, 6833-6835. 6839-6843——English hops are not sent to America, 6844.

Opinion that the best Bavarian hops are far superior to the best East Kent, 6845, 6846. 6856-6873. 6992——Superior soil, climate, and cultivation to which the fine quality of the Bavarian hop is attributable, 6847, 6848——Particulars as to the mode of cultivation in Bavaria; system of poling, &c., 6848-6851. 6874-6884. 6906, 6907——Very long poles used in Bohemia, 6851-6853——Importation at times of inferior and superior Bohemian hops mixed together, 6854, 6855.

Particulars as to the higher prices recently obtained by witness for Bavarian hops than for East Kent; the former have been readily bought at 7*l.* 10*s.* per cwt., whilst the latter have not fetched more than 5*l.*; 6856-6873. 6911-6917. 6940-6956——Absence of official or reliable returns relative to hops in Bavaria, 6885. 6888-6890——Computation of from two to three cwt. per acre as the average produce in Bavaria and Bohemia, 6886-6888.

Practice of the Bavarian growers to sell to the factors and merchants before the hops are cured, 6891-6895——Practice of drying or rather of sulphuring the hops in order to render them fit for exportation to England, &c., 6893, 6894. 6897-6903——Natural system of drying practised by the grower, which is considered sufficient if the hops are for immediate use, 6895-6897——Doubt whether sulphured English hops would be seized by the Bavarian authorities; the brewers would not use them, 6903-6905——Witness has an oast-house in Bavaria where the hops are cured for the English market, 6908-6910. 7065-7067.

Evidence as to the value of hop land in Bavaria, 6918-6933——Reference to the Spalt hops as being over-rated, 6931——Sales are not often forced in Bavaria, 6936——There is not much stock there at present, 6938, 6939——Prices recently given by witness to his broker in Bavaria; additional charges and duty, making the total cost about 7*l.* per cwt. when sold in this country, 6940-6956——In 1856 the Bavarian crop was not large, but this year it is expected to be unusually abundant, 6957.

Witness is a grower in Mid-Kent and the Weald of Kent, 6958-6960——He considerd that in the event of free trade, the planters in this country would see the importance of growing hops of better qualities, and would generally be enabled to compete with the

Report, 1857—*continued.*

Waterman, Thomas. (Analysis of his Evidence)—*continued.*

foreigner thereby, 6961, 6962. 6976-6978. 6990 *et seq.*——Distress consequent upon or rather anticipated from, the large produce of the Colegate hop of late years, 6961-6974——The Colegate is a very prolific hop, but of an inferior kind, 6975. 6979-6989.

Evidence to the effect that the growers of the better class of hops, and not the growers in Sussex and the Weald of Kent, would be the parties to suffer by free trade and an increased importation of Bavarian hops, 6990 *et seq.*——Very defective management in the drying of hops in East Kent and Mid-Kent, 6993. 6997-7003——Before the abolition of the Customs duty there should be a reduction in the malt duty, 7027. 7046-7052. 7082-7087——Much better management in Worcestershire and Herefordshire than in Mid or East Kent, 7035-7037.

Better quality of the Mid and East Kent hops than of the Farnham hops, though by some the latter are much preferred, 7038——Inability of Bavaria to supply all the hops required in this country; improbability of their being allowed by the English planters to do so, 7039-7055——An extreme price of hops decreases the consumption of malt, 7048——Gain to the consumer in quality when hops are plentiful, 7049-7052.

Beer is the general beverage in Bavaria, and is very cheap; Government restrictions thereon, 7053-7060——There is an import duty in Bavaria upon English malt and hops, 7061, 7062——The Belgian hops are very inferior, and are not likely to compete with the English hops, 7063——There is not much English capital in the hop trade in Bavaria, 7068-7070——Difficulty to Englishmen in trading in Bavaria, 7070——Free trade would not lead to English capital being invested in Bavaria, 7071-7073——Impression that the abolition of the duty would be no advantage or encouragement to the Bavarian, 7074-7080.

Relief to the English grower if the Excise and Customs duties be removed and the duty on malt reduced, 7081-7088——High price at which hops sold in 1840; 7089-7091——High prices fetched by the hops of 1853; 7092-7094——Particulars as to the prices obtained by witness for Sussex and best hops in September 1854 and following months; there was nothing like a reduction of 50 per cent. in six months, 7095-7121.

Weald of Kent. Character of the hop land in the Weald of Kent, as compared with that in the Weald of Sussex, *Tooth* 1336-1338——There is a large quantity of inferior land in the Weald of Kent, which does not justify heavy expenditure, and where inferior hops only are produced; this land would hardly produce corn at all, *ib.* 1397-1399. 1413. 1415-1427——Opinion that the planter does not make any profit out of the inferior land, *ib.* 1419. 1425-1427.

Greater produce but less aggregate value of the hops in the Weald of Kent than in Mid or East Kent, *Neve* 2640-2643——The Excise duty for the last two years has amounted to 30*s.* in the pound upon the rental in the Wealds of Kent and Sussex, *ib.* 2782-2784. 2797. 2815——The pressure of the duty is chiefly felt by the growers in the Wealds of Kent and Sussex, who have not much capital to fall back upon, *Hammond* 3191, 3192——Character and soil of the hop land at Yalding and Horsmonden, *Hartridge* 3512, 3513——Average growth by witness of from 7 to 8 cwt. per acre for the last ten years, *ib.* 3564, 3565.

See also *Acreage Duty*, 3. 5. *Bavaria*, 11. 12. *Belgium. Capital of Hop Growers. Colegate Hop. Cost of Cultivation. Distress. Excise Duty. Forced Sales. Free Trade. Prices. Profit or Loss of Hop Growing*, 1. 5.

Weald of Sussex. See *Sussex.*

Webster, Frederick. (Analysis of his Evidence.)—Has for the last fifteen years been practically connected with growing hops, but is not now a grower on his own account, 568-570——Has the management of large property in the Battle district, upon which hops are grown; character and rental of the hop land in this district, 570-583——Calculation showing an expense of about 22 *l.* an acre in the cultivation of hops after the garden is in full pole, 585-589. 598-606. 618-622. 640, 641——Calculation of 36 *s.* a cwt. as the expense of picking and drying and the duty, 586. 602. 623-626. 642, 643——Expense incurred during the first year, when there is hardly any return, 590-597.

Necessity of drainage equally for other purposes as for hop growing, 599, 600——Witness looks upon the expense of oast-houses as included in the rent, 603-606——In Sussex the plantations last on an average for about twelve years, 607. 615-617——An oast-house, which cannot properly be erected for less than 100 *l.*, is not attached to every small hop garden, 608-614——Great fluctuation in the produce per acre; in the Battle district the average is about eight cwt., 627-635——Quantity and price of the hops grown by witness in 1853, 1854, 1855, and 1856; larger profit on the moderate crop in 1853 than on the abundant crop in 1855; 629-639.

A price of 4 *l.* per cwt. upon a yield of 15 cwt. to the acre would be remunerative, 644-647—— Statement as to some new hops having been sold in 1855 at the low price of 32 *s.* per cwt., 648-653. 663. 682, 683——It has been said that hops were left unpicked

Report, 1857—*continued.*

Webster, Frederick. (Analysis of his Evidence)—*continued.*

unpicked in Sussex in 1855 in consequence of the low price, 654-656——The district about Battle is very subject to blight, 657, 658——Peculiar advantage of the parish of Udymer, near Rye, as regards blight, 659-662.

Necessity of the grower sending his hops to the factor through the want of proper buildings for keeping them, 664, 665——Deterioration in value by keeping the hops in warehouse, 666-668——Difficulty in growing the Golding hop in Sussex, 668. 673-676——Circumstance of the factors always returning the hops at a lower weight than the Excise weight, 669, 670. 677-681——The grapes and Colegates, inferior priced hops, are chiefly grown in Sussex, 671-676——In 1854 Sussex hops sold at 20 *l.* a cwt., in consequence of the short supply, 684-686——Low amount of the duty in the years 1823, 1825, 1840, and 1853; 687-690.

Tendency of the necessary payment in November of the second moiety of the duty to force sales and to lower prices, 691-699. 725-728——In abundant years the producer pays the duty out of his own pocket without recovering it in the price, 693-699. 779-784——Grounds for the conclusion that a reduction in the Customs duty on foreign hops does not lead to a reduction in the price, but is so much additional profit to the foreign grower, 700-718. 740-743. 755. 776-785. 853——Belief that if both the Customs duty and the Excise duty were abolished the home grower would be in a better position, and could profitably compete with the foreigner, 711, 712. 739-785. 789. 854-868.

As regards the practice of betting about the amount of the duty, an earlier payment of the duty would not prevent it, 719-721——Effect of an earlier payment of the duty to prevent persons without proper capital from speculating in hop growing, 722-733——Advantage of an outlay of capital on artificial manure in the cultivation of hops, 733-736——Large proportion of each year's growth sold before the end of the year, 737, 738——Equal restriction upon the home grower by the Excise duty of 1 *l.* per cwt., as upon the foreign grower by the Customs duty of 45 *s.* per cwt., 740 *et seq.*

It is well known that the Excise duty operates very injuriously upon the home grower, 755——Doubt as to any extension of hop plantations if the duty were removed, 756. 763——Cost of production, and facilities for increased production in foreign countries adverted to, 758-775. 859-862——If there were no duty, Sussex hops might be sold at a profit at 66 *s.* a cwt., 772-774——Belief that the abolition of the Customs and Excise duties would not be any advantage to the consumer of beer as regards the price; it might be some advantage as regards the quality, 786-788. 798-801.

Hardship upon the home grower by the reduction of the Customs duty in 1854; 790-797——Some of the regulations of the Excise are much complained of, 802-805——Exceptions taken to the practice of requiring the hops to be marked with the name of the parish in which they are grown; prejudice thereby to Sussex hops as compared with Kentish hops, 802-805. 809-853——There have not been many prosecutions for recovery of duty, 806-808——Great demand for hops for exportation; hence the large importation, 867, 868.

Witness has not known any Chancellor of the Exchequer except the present, justify the Excise duty on hops, 869-873——If the duty be considered an indirect tax upon beer, it would be better and fairer to add it to the amount of duty upon malt, 874-885——Remarks relative to the extraordinary tithe upon hops which varies from 14 *s.* to 18 *s.* an acre, 886-897——Further reference to the rent and quality of the hop land in witness's district, 898-900.

Weyhill Fair. Practice of witness and of planters about Farnham, Alton, &c. to sell large portions of their hops at Weyhill fair, which is attended by brewers, merchants, and factors, *Nichols* 4890-4896. 4915-4919. 4963-4968. 4974; *H. T. Smith* 5585, 5586——Witness as factor attends Weyhill fair, and sells for the planter to the merchant, *Harryman* 6403, 6404.

White Bine Hops. See *Farnham.*

Whitling, Henry John. (Analysis of his Evidence.)—Bavarian hop merchant, 6569-6572——Statement of the prices of hops in Bavaria, as sold by the grower before drying, for the last eight years; personal experience on which witness puts forward this statement, 6573-6591——To the price paid to the grower must be added, from 15 *s.* 6 *d.* to 18 *s.* 6 *d.* as the expense of drying, packing, and freight before sale in this country, 6592-6598——Quantity of Bavarian hops imported by witness of late years, 6598-6600——Fallacy in relying upon averages of the prices as regards the effect of competition with this country, 6601-6604.

Less uncertainty of the crop in Bavaria than in this country; average produce of about five cwt. per acre, 6605-6610. 6630, 6631. 6657-6659——Better quality and cultivation of the soil in Bavaria than in England; hence their hops are better than ours, 6608. 6613-6626. 6653-6657——The holdings are in the hands of small proprietors, which is a check to improvement, 6612. 6625, 6626——System of poling in Bavaria, 6622. 6666——Nature

Report, 1857—*continued.*

Whitling, Henry John. (Analysis of his Evidence)—*continued.*

——Nature of the manure used, 6624——There are about 28,000 acres under cultivation, 6627——Calculation of from 12 *l.* to 15 *l.* as the cost of cultivation per acre up to the time of picking, 6628–6652——Varying price of hop land, 6639, 6640——Facility for extended cultivation, 6660–6663. 6696–6698——Difference between the English and Bavarian mode of drying, 6664, 6665.

[Second Examination.]—Explanation as to the use in Bavaria of the hop-bine as a manure, 6680–6686——Statement of the acreage under cultivation in the several German districts besides Bavaria, and of the average produce per acre; data for this statement, 6687–6693——Character of the soil in different parts of Bavaria, Bohemia, &c., 6694, 6695——Considerable increase in the produce of Bavaria on account of the increased home consumption and the increased exportation, 6699–6701. 6708–6711.

Tenure of land in Bavaria further adverted to, 6702——The cultivation is mainly by manual labour, 6703——The average produce is from four cwt. to five cwt. per acre, 6704——Witness has lived for thirteen years in the hop districts of Bavaria, &c., 6705–6707——Different qualities of Bavarian beer; the ordinary beer is very highly hopped, and is not capable of transit by sea, 6712–6721. 6765–6792——There are only two distinct classes of hops grown, the early hop and the late hop, the latter, which is a heavy hop, being the best in quality, 6722–6730.

Very defective way in which the Bavarian hops are picked, 6731. 6751——The cultivators never dry the hops, 6732——System of drying further adverted to, 6733——Further reference to the value of land, 6734–6741——System of poling further adverted to; its expense, 6741, 6742. 6825, 6826——Proportion of the produce consumed in the country, and proportion exported to different countries, 6743–6747——Two-thirds of the land produce hops fit for English use, 6748——The best Bohemian hops are, in witness's opinion, better than the best East Kent hops, 6749.

Fraud in the case of some inferior Bavarian hops sent to this country in 1854; 6750——Advantage of a mark in the case of the Bavarian hops, 6751——Complaint as regards the excessive Customs duty in this country, 6752——Trifling duty on hops imported into Bavaria, 6753. 6795——Route of Bohemian and Bavarian hops in coming to England, 6754——How far any difficulty in an English hop merchant establishing himself in Bavaria; experience of witness hereon, 6755–6764——Improbability of the ordinary Bavarian beer successfully competing with English beer, 6765–6780.

Some English hops were sent to Bavaria in 1847, but the police forbade their use, as being sulphured, 6782–6784——Prejudice in this country against Bavarian hops, although better than the best English, 6793. 6800——Obstacle to the use of English hops in Bavaria, 6794–6796——Free trade would bring only the best Bavarian hops into competition with the best English hops, and that only to a limited extent, 6797–6800——Particulars, as shown by chemical analysis some years ago, of the qualities of Bavarian and English hops; extent to which and respects in which the former surpassed the latter, 6801–6821——Amount of wages in Bavaria, when hired labour is employed, which is not always the case, 6822–6824.

Woodland. See *Underwood.*

Worcestershire. Large produce grown by witness near Worcester in 1846 and 1855; his produce generally is above the average, *J. P. Smith* 4352–4355. 4361–4364——Different qualities of hops grown by witness, *ib.* 4356–4360. 4386–4389——Character of the soil of witness's hop land and of the cultivation bestowed upon it, *ib.* 4362–4364. 4372–4381. 4517–4526. 4529. 4530——Decrease of the practice in Worcestershire of growing hops in orchards; improved system of cultivation, *ib.* 4365–4371. 4404. 4409——Witness, who is a merchant as well as a planter, generally sells his hops to Mr. Bass, *ib.* 4382–4385.

Slight diminution, if any, in the extent of hop land under cultivation in Worcestershire, *J. P. Smith* 4405–4409——Absence generally of complaints in Worcestershire against the Excise duty; reference hereon to some distress among the Worcestershire and Herefordshire planters in 1848 and 1849, *ib.* 4411–4440. 4450——Much greater proportion of hop land in Kent and Sussex than in Worcestershire, *ib.* 4491–4494——Doubt whether hops can be grown more profitably in Worcestershire than Sussex; cost of cultivation, produce, and price in each county adverted to hereon, *ib.* 4495. 4515–4546——There is much land in Worcestershire available for hops, *ib.* 4531, 4532.

Practice in Worcestershire to sell the hops to merchants at Worcester fair, *J. P. Smith* 4603–4609——The different kinds of hops are distinguished by numbers, *ib.* 4615——Advantage to the Worcestershire planters in not having had very large crops in 1856, *ib.* 4625–4631——Unanimous feeling in Worcestershire in favour of a continuance of the Customs duty, *ib.* 4630. 4632——The great majority of the Worcestershire hops are sold at Worcester; a portion are bought by the London merchants or factors, *H. T. Smith* 5581–5584.

Report, 1857—*continued.*

Worcestershire—continued.

The Worcestershire and Herefordshire hops are not often sent to witness or other London factors for sale, *Harryman* 6447-6449—— The local trade and prices at Worcester, &c. are governed by the London trade, *ib.* 6450-6457——The best hops of Worcestershire and Herefordshire are not equal to the best Kent hops, but are superior to the hops chiefly grown in the Weald of Kent and Sussex, *ib.* 6452-6455.

Number of planters in Worcestershire in each of the years 1847-56, *App. p.* 407.

See also *Cost of Cultivation.* *Profit or Loss of Hop-Growing*, 4.

Y.

Yalding (*Kent.*) Fine hops grown in Yalding parish, *Hartridge* 3651-3653. 3664-3666 ——Average produce per acre in Yalding, *ib.* 3671-3676——The land in Yalding is held by the seller to be in Mid-Kent, and by the buyer to be in the Weald of Kent, *Cutbush* 5297-5300.

INDEX

TO

REPORT

FROM THE

SELECT COMMITTEE

ON

HOP DUTIES.

Ordered, by The House of Commons, *to be Printed,*
7 *August* 1857.

[*Price* 8*d.*]

252—I.—Sess. 2.

Under 8 *oz.*